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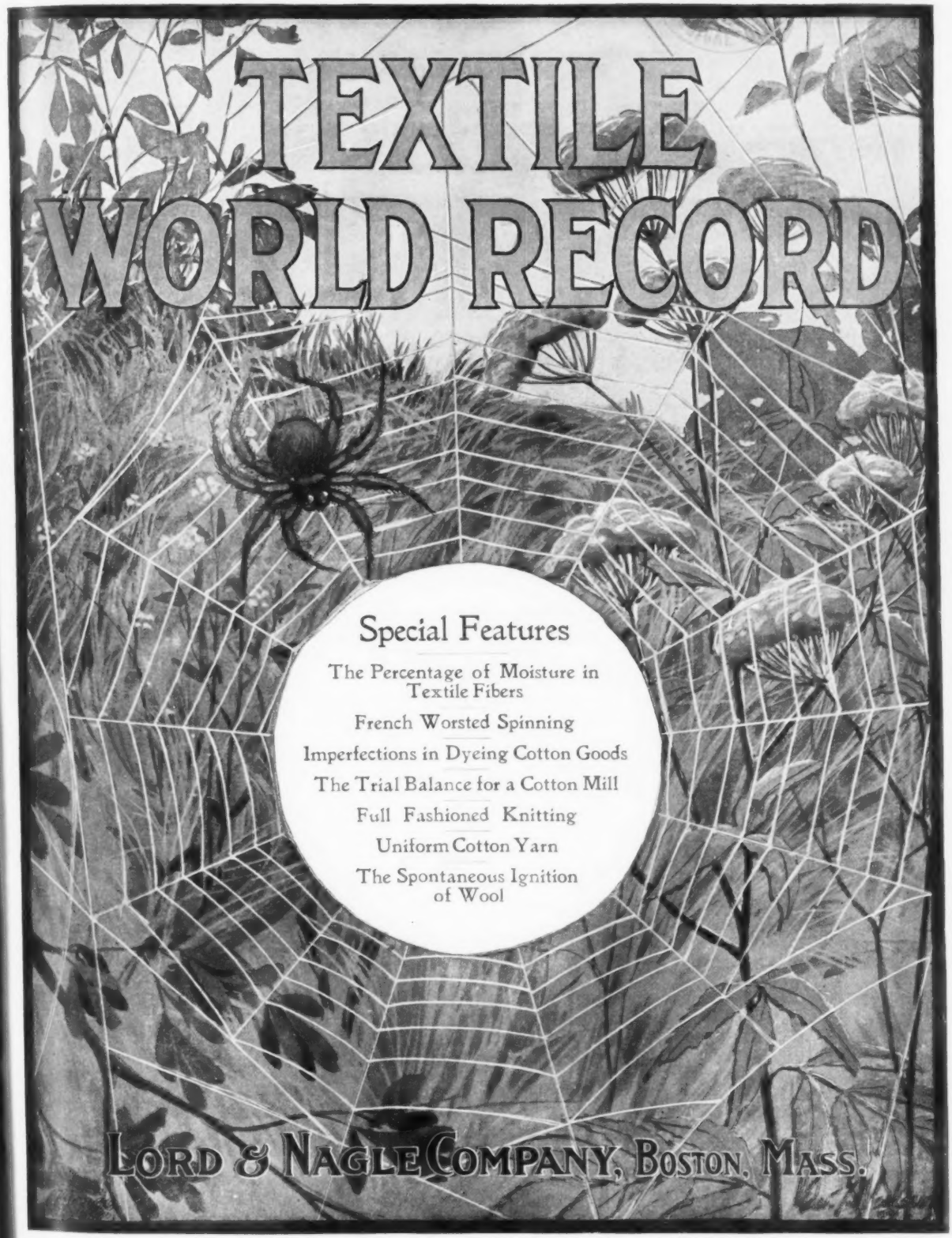
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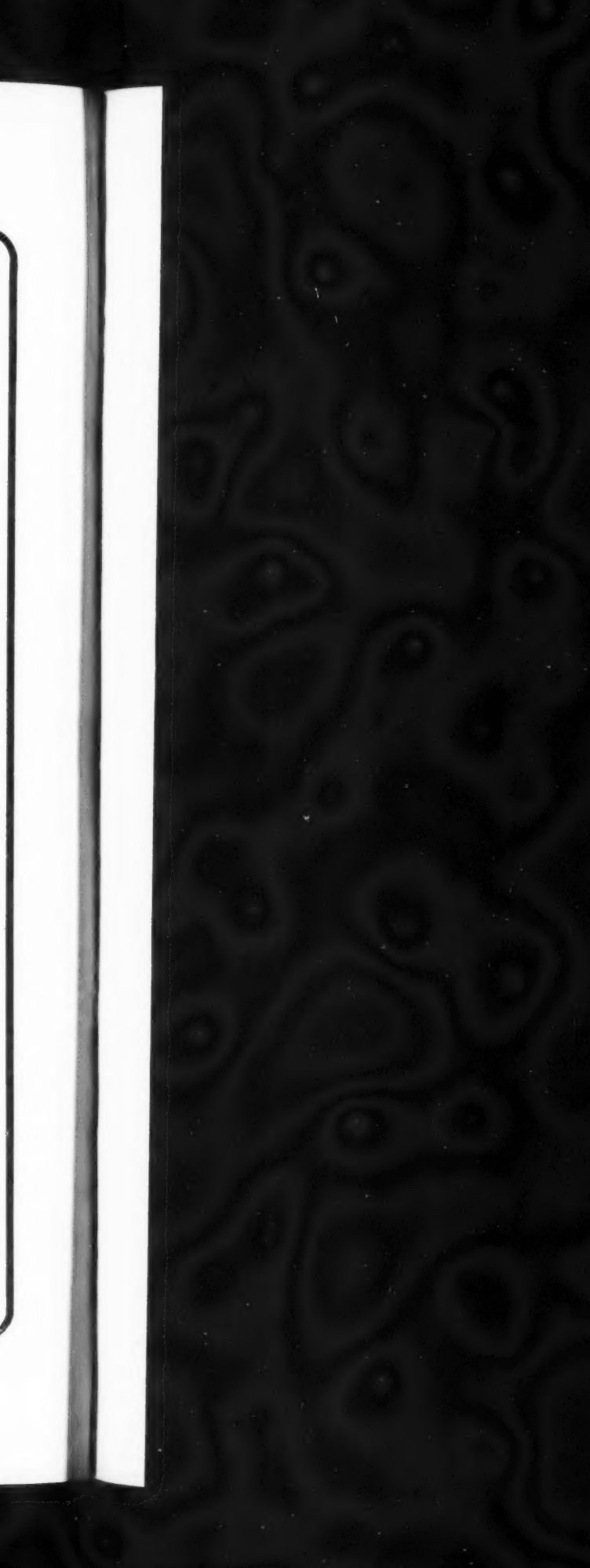

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## Correspondence

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# TEXTILE WORLD RECORD

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**The Textile World and Textile Record.**

VOL. 40 (NEW SERIES.) March, 1911 No. 6


# *Monthly Comment.*

### Organized Short Time.

The cotton spinners of Italy have supplied the latest example of the failure of organized short time in the European cotton trade. The agreement to run on short time, made by the Italian mills, expired on Feb. 1. Efforts were made by a number of spinners who were short of profitable orders for yarn, to have the short time schedule continued in force, but the spinners who were supplied with cotton purchased on favorable terms and who could therefore produce yarn at a profit at prevailing prices, were sufficiently numerous to prevent a renewal of the agreement. Accordingly the Italian spinners are now operating their mills to suit their individual requirements. Organized short time failed in Lancashire some time ago, and it is practically certain to fail in the other countries of Europe. The interests of the different mill owners vary so widely that an agreement for curtailing production cannot be maintained for any extended period. In a crisis such as prevailed during the cotton shortage of 1904 cotton spinners will be drawn together in support of a short time schedule by reason of the danger to which nearly all are exposed. At such a time the short time resolutions of a cotton congress acquire their importance from the fact that they express a general sentiment in favor of self-preservation. But such crises happily are of rare occurrence and in other and normal years short-time resolutions are ignored by spinners who look upon them as the echo of a cry for help when their duty is to help themselves to such orders as they may find on their books. The mistake has been made in Europe of looking upon cotton congresses as a means of promoting short time, whereas the congress is chiefly the effect of conditions calling for short time. The wonder is that so many have taken seriously the proposition to organize short-time throughout not only an entire country, but throughout the world, although it has never been possible to bring the spinners of a single city to the continued observance of such an agreement.

### British Colonial Cotton.

A report on cotton growing in Nigeria by E. D. Morel, who was sent to Africa by the Manchester "Guardian" to investigate and report on the well advertised experiment of raising colonial cotton for Lancashire mills, will be found in this issue. The English public has been led to believe that the natives in Africa were guaranteed 1d (2 cents) a pound in cash for all the seed cotton they offered for sale to the agents of the British Cotton Growing Association. With a yield of 35 per cent. this would have been equal to 5 3/4 cents per pound of lint.

The facts, as found by Mr. Morel, are somewhat different. The price fixed by the thrifty white dealers for African seed cotton has until recently been but three farthings (1 1/2 cents), equal to 4 1/4 cents for lint, and this price was paid, not in cash, but in goods, presumably goods whose values represented a good round profit to Lancashire. We are assured now that this has been changed, and that in future the natives will receive 1d a pound in cash for all seed cotton delivered to the Association's agents.

### Competition in Cotton Sewing Thread.

The Wochenherichte der Leipziger Monatschrift fuer Textil-Industrie in a recent issue states that the Singer Co. has decided to engage in the manufacture of cotton sewing thread in Russia in competition with J. & P. Coats. The last named firm have complete control of the Russian market and dictates the price at which cotton thread is sold there. The Monatschrift expresses the opinion that the entrance of the Singer Co., with their immense resources into this trade will mean real competition for the Coats. It is expected that the Singer Co. will be able to market their thread so as to counteract the methods heretofore employed to crush competition in the thread business.

### The Cotton Trade in Europe.

The depression in the cotton trade on this side of the Atlantic finds its counterpart on the Continent where the mills are curtailing production, with profits reduced by reason of the failure of prices for yarn and cloth to advance in proportion to the high level for raw cotton. Somewhat better reports come from Lancashire where the cotton trade shows a more marked tendency to reach an adjustment to the changed conditions brought about by 15-cent cotton. The total value of British imports and exports in 1910 amounted to £1,109,029,284, the highest on record. Cotton goods exports shared in the increase, their value £71,716,808, as compared with £60,295,049 in 1909. This increase in the value of cotton goods was due, however, to the advance in prices, the weight of the goods in 1910 having been 17,614,860 cwt, as compared with 19,542,513 cwt. in 1909, showing a decrease of 15 per cent. in the weight and an increase of nearly 19 per cent. in the value.

This is the export record of a year during which the cotton mills of Lancashire have been on short time. A more hopeful feeling prevails in the English cotton trade at the present time, but the high price of cotton is certain to make business more difficult and unsatisfactory for mills that sell 80 per cent. of their production in foreign markets.

### Colonial Cotton.

The report of the German Colonial Cotton Commission recently issued a report of progress, by which it appears that the German colonial cotton crop is increasing. In 1909 Togo produced 2,043 bales of 550 pounds each, as compared with 1,667 bales in the preceding year. Still more gratifying was the increase in the cotton from German East Africa. In 1909 the crop from the last named colony amounted to 2,077 bales, as compared with only 1,081 bales in 1908, an increase of nearly 100 per cent. The figures for 1910 are not included in the report, which states, however, that Togo will show a decrease for the year just closed.

The cotton crops of English, German and French colonies are compared for 1909 and 1908 as follows:

| | 1909 | 1908 |
|---|---|---|
| English | 21,400 | 16,000 |
| German | 4,100 | 2,700 |
| French | 950 | 670 |
| | 26,450 | 19,370 |

## EXHIBITION AND CONVENTION.

The National Association of Hosiery and Underwear Manufacturers will hold its annual convention and exhibition in Philadelphia on May 21st to 26th, 1911. It is planned to make the exhibition more extensive than ever before and as the membership has been greatly increased it is expected that there will be a very large number in attendance. The rates for space in the exhibition hall will be the same as last year.

## PRESIDENT J. P. WOOD HONORED.

A dinner in honor of John P. Wood, the recently elected president of the National Association of Wool Manufacturers, was given at the Manufacturers' Club, Philadelphia, on Feb. 25. It was largely attended by members of the association and friends of President Wood. After the dinner Joseph R. Grundy, the toastmaster, introduced Frederic S. Clark, president of the American Association of Woolen and Worsted Manufacturers, who spoke on the "Advantages and Necessity of Organization in Business." Mr. Clark was followed by Hon. John W. Fordney, of Michigan, who spoke of the friendship he formed with President J. P. Wood and Joseph R. Grundy during the recent revision of the Dingley tariff. Mr. Fordney referred to the critics of schedule K and thought the punishment that would fit their crime would be to set them at the task of framing a perfect tariff themselves. He said in part:

> If I were to wish something bad upon the ones who are loudest in their criticism of this law, I would wish upon them the task of preparing a perfect tariff law which they talk about, one that would please all concerned; that would decrease the cost of everything consumed and increase the price of labor. (Laughter and applause.) It is easy to criticise; so easy to make high-sounding, pleasing statements of how things should be; it is easy to destroy and so hard to build up. (Applause.) I admire a good, sound, practical man, with practical reasons for practical suggestions, a man who offers something better for that which he condemns, a man who builds up rather than destroys.

Mr. Fordney was followed by William M. Wood, president of the American Woolen Co., who spoke in part as follows:

> Now the woolen business is a business of a lifetime. We are here to stay. They tell me if you once get into it it is a life sentence, and I begin to believe it. I understand that most of you gentlemen present, or many of you are not woolen manufacturers, but whatever happened to schedule K will happen to every other industry. To those who are interested in schedule K, I want to say that your backs are against the wall, that you now have the fight of your life before you.

Among the other speakers were ex-Gov. Stuart, of Pennsylvania, and Charles H. Harding, of Philadelphia. President J. P. Wood made a fitting acknowledgment of the honor paid to him and urged united effort in the crisis that the industry is now facing.

## VIGOUREUX YARN.

*BY GAUL.*

(Translated from the French by the Editor of the Textile World Record.)

In spinning wool printed by the vigoureux process the rollers of the various machines very quickly become covered with dirt or dye from the yarn. This is especially true in the case of dark shades and the rollers soon become unfit for service. This defect may arise from various causes:

1. Insufficient rinsing. This results from a failure to give the printed sliver enough runs through the liquor from a fear that the sliver will be damaged. It also arises from rinsing at a low temperature from the fear that a high temperature will make the colors run. The temperature of the various rinsing baths should be about 100° F. It should not be forgotten that only the dextrine is soluble in cold water and that this material always contains a certain percentage of raw starch which can be removed only by a prolonged contact with tepid water.

2. Insufficient solubility of the thickening material. The dextrines, refined starches and British gum are used for thickening material. Some of these materials frequently contain as high as 50 per cent. of unrefined starch. While the liquor is cooling this starch is deposited on the sliver and is very difficult to remove. This occurs more frequently with white dextrine. Dark brown refined starch is free from this objection, but is a very poor thickener. As a result it is necessary to avoid the white dextrines, especially on black work.

3. Imperfect Fixing of the Dyes. As has been said before, the blacks are frequently used in vigoureux printing and in the majority of cases these dyes are fixed with nitrate or pyrolignite or iron. If this mordant does not contain a sufficient quantity of acid it produces insoluble lakes in the bath, which at times acquires a metallic appearance. These insoluble lakes become attached only to the surface of the fibers and steaming fails to fix them on the material. Moreover these iron lakes make a part of the dextrine insoluble, especially the refined starches, and prevent their removal. As a result the passage of the slivers through the gill box becomes nearly impossible.

## THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS.

The 90th meeting of The National Association of Cotton Manufacturers will be held at the Massachusetts Institute of Technology, Boston, Mass., April 12th and 13th, 1911. These dates have been selected because they immediately follow the congress of technology which will be held on the preceding days, in celebration of the 50th anniversary of the charter of that institution. It is expected that many of those present will remain to attend the meeting.

President Maclaurin of the Massachusetts Institute of Technology will speak at the opening session and during the meeting papers are expected on the following subjects:

Arbitration on Cancellation of Orders.
By-Products in Cotton Manufacture.
Doffing Machines and their Relation to Child Labor.
Electric Power Transmission to Cotton Mills.
Executive Management of the Textile Plant and its Relation to the Market.
Gas Producers and Gas Engines for Cotton Mills.
Illumination.
Law of Moisture in Cotton and Wool.
Methods of Cost Finding in Cotton Mills.
Moisture in Cotton.
Renaissance of the Waterfall.
Rewinding Weft Yarn.
Sandwich Island Cotton.
Textile Education from a Manufacturing Standpoint.
Weaving Shed Roof Construction.

Also reports on standard specifications and other subjects by special committees.

## PAPER TWINE FOR TYING WOOL.

*BY DANIEL S. PRATT, Jr.*

The Textile World Record in its edition of June, 1908, printed an article on the false packing of wool, in which was described the serious loss to manufacturers through defects in the cloth caused by the jute and sisal fibers, which have come from the rough twines commonly used in tying the fleeces. Since that time there has been an increasing effort to insure the use of a proper twine for tying fleeces. In several foreign markets, such as Australia, and to a certain extent South America, the fleeces are tied with a small, strong, hard twine, which reduces to the minimum the dangers of the small fibers of the fleece twine becoming mixed in the wool.

During the last few years, several manufacturers have been endeavoring to spin a suitable fleece twine from paper, and there

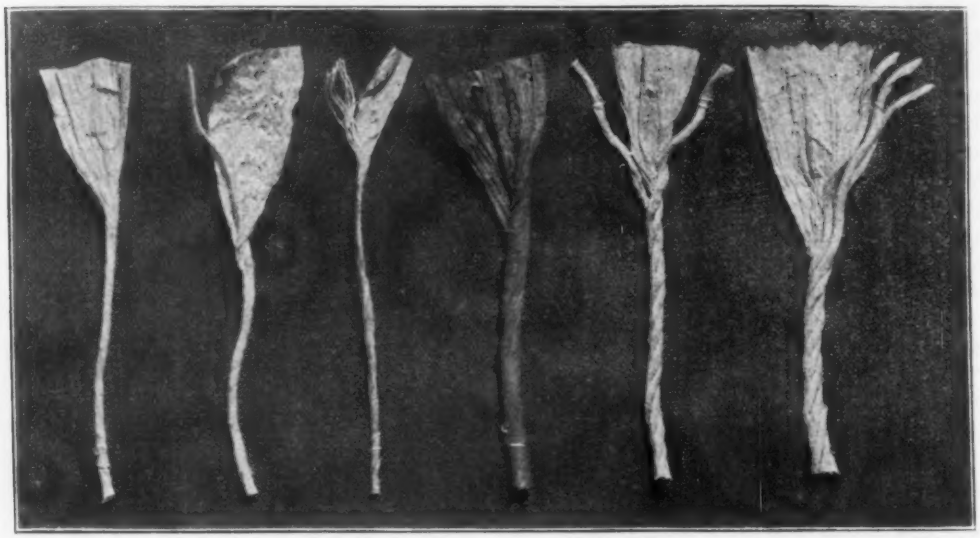


FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5. FIG. 6.

have been produced as result of these experiments several practical twines. The advantages of a fleece twine made from paper are manifest, as there are no fibrous particles to get into the wool and cause serious defects in the cloth. Any particles of the paper twine, which may be left in the wool, will be reduced to pulp in scouring. Obviously the main requirements of a paper fleece twine, would be lightness, strength, and the ability to withstand ordinary moisture. There have been a number of ingenious inventions along these lines, but for various reasons the twines are not suitable for tying fleeces. As a matter of interest a few of them are shown here. Fig. 1, manufactured in this country. Made entirely of paper, but is too weak and will not stand up under moisture. Fig. 2, foreign made. Consists of paper spun around a linen core. It is light and strong, but cuts itself when crossed in tying a fleece. The chief objection to the twine shown at Fig. 2, however, lies in the fact that, should a piece be left in the wool, the paper would disintegrate in scouring, leaving the linen core, which would cause the same defect in the goods, as a sisal fiber. Fig. 3 shows a style of twine made by a domestic concern. These twines are made by spinning the paper around a core of cotton yarn, the manufacturer using in different twines one ply, three ply, and eight ply yarns of varying counts. The objections to the yarn shown at Fig. 2 apply in this instance. At the request of the National Wool Warehouse and Wool Storage Co., the Wortendyke Mfg. Co. of Richmond, Va., have been experimenting on paper fleece twines for several years. At first they produced a single strand twine, which was found to have many of the objectional features already mentioned, but they finally evolved a 4-ply twine, the "Veribest," Fig. 6, which is strong, will not slip when tied, and is not affected by grease or ordinary moisture.

Three different styles of these practical fleece twines are shown at Figs. 4, 5 and 6, the use of which twines are advocated by the National Wool Warehouse and Storage Co.

The 4-ply twine, while of fair size, is considerably lighter than many of the sisal or jute twines, commonly used in tying domestic fleeces, but it is very much heavier than the small, hard twine used by the Australian and several of the South American packers. A smaller and lighter 4-ply paper twine of sufficient strength can be manufactured, but it is stated that the workmen object to a small twine, as it cuts their hands in tying the fleeces. This complaint has been made of the larger twine shown at Fig. 6. Some years ago a large South American packer, when he inaugurated the use of a small, hard twine, nearly had a strike upon his hands, as the workmen complained bitterly that the string cut their hands. This complaint was met by supplying the men with leather palms, such as are used by shoemakers. This device should make a lighter twine practical for general use.

There are indications that the use of paper fleece twines will eventually become general. In considering the efficiency of a given twine, the element of weight is a most important factor, when it is considered that the sheep raiser sells annually many thousand pounds of string at the price of wool. The twines shown at Figs. 4, 5 and 6 are a long step in advance.

The advantage of a lighter twine is shown by the following statement of the number of fleeces, which may be tied with the paper twines as compared with the number tied with one of the fine, hard twines previously referred to, allowing the usual length of 7 1/2 feet to a fleece.

| | | No of Fleeces Tied. | Lbs. for Total U. S. Clip | Cost of Twine at Price of Wool. Av. 20c per lb. |
|---|---|---|---|---|
| Fig. 4, Single 1 lb. | = 412 ft. | 55 | 1,030,280 lbs. | $206,058 |
| " 6, 4 ply | = 405 " | 54 | 1,059 555 " | 211,911 |
| " 5, 3 " | = 507 " | 76 | 752,842 " | 150,568 |
| Small Foreign Twine | = 997½" | 133 | 430,195 " | 86,039 |

The agitation for the use of proper fleece twines is growing. Last year about 30,000,000 pounds of wool was tied with paper twines, and it is estimated that this season nearly 60,000,000 pounds will be so tied. The movement will spread of its own accord as soon as the growers realize that wools free from jute or sisal fibers will bring a higher price.

## SPONTANEOUS IGNITION OF WOOL.

*By BENJAMIN RICHARDS, Inspector*

The possibility of spontaneous ignition occurring in raw wool has long been discussed. Heretofore the general opinion seems to have been that wool will not take fire spontaneously. An investigation, however, discloses some well authenticated cases of fires in wool which undoubtedly originated from this cause, and leads to the conclusion that under certain conditions fires in some kinds of wool may take place from spontaneous ignition.

In general, wool must contain an excess of moisture before it is likely to give evidence of excessive spontaneous heating, although this, by no means, is a criterion of such action always taking place. Most new wool, if packed closely in a large pile, develops more or less rise in temperature. This temperature rarely approaches the ignition point, but quite commonly develops enough heat to cause fermentation, with the result that, if not promptly handled, the fibers will be weakened and the wool depreciated in value. Excessive moisture in wool may originate from several sources. Bales may become wet from exposure before shipment, or from leakage in ships while in transportation. Wool in vessels which have been wrecked has shown the tendency to heat after the bales had been removed from the water. At times market conditions are such that wool is shipped promptly after shearing instead of lying in storage as is usually the case. Such wool is sometimes called "green" wool. It is slightly heavier and contains more moisture than wool, which is allowed to take the customary course through the storehouse. Occasionally sheep are sheared when wet, with similar results to the product.

An exhaustive report of a special commission appointed by the Governor of New Zealand in 1906, which was published in the Textile World Record, gives the following interesting data relative to wool fires. The occasion for the report was the prevalence at that time of a number of fires on shipboard originating in wool shipped from New Zealand:

"The yolk of wool is a fatty material and contains among its constituents oleic acid, which absorbs oxygen. In a properly packed and stored bale of wool this action nearly always takes place and is accompanied by a slight increase in weight and by the generation of a small amount of heat. This heat is nearly always concentrated near the center of the bale, as it is here that the air has practically no access, and the non-conducting properties of the wool store up the heat. If the wool is moist, the increase of heat in the center of the bale becomes excessive. Where large numbers of bales are stored in the hold of a ship it is well recognized that such moisture will cause damage to the wool, even though not resulting in a temperature approaching ignition.

"From a review of all the circumstances—the reports of investigations, the opinions of scientists and the evidence which has been before your Commissioners—there is no room to doubt that spontaneous combustion does take place in wool. Numerous instances might be quoted where the interior of bales of wool has been actually on fire after being exposed to the atmosphere."

The above remarks referred to wools, such as light shrinking wools, pulled wool, "pieces" and "locks." "Locks" and "pieces" are "skirtings" or other portions taken from the fleece either purposely or by accident. Ordinary greasy wool comprised 82 per cent. of the total wool shipment from New Zealand in the year covered by the above report, yet the Commissioners failed to find any evidence of a fire originating in such wool, although they admitted the possibility of such fires.

An English correspondent of the Textile World Record of Boston ridicules the idea that a fire originating in a bale of wool can spread beyond the bale. He states that many sea-damaged bales and bales packed while wet are for some weeks after arrival so hot in the center that the bare hand cannot be placed on the wool. Occasionally they contain fire inside, though it does not break out into flames. The chemical action is thus described: "The moisture started microbial action and the micro-organisms attracted

oxygen and set up a combination of oxygen with carbon. They multiplied rapidly in conditions of temperature favorable to them, and their heat was stored and accumulated by the layers of extremely efficient non-conducting material (wool) around them. The heat increased in the affected area to such a pitch as to crisp, tender and finally char the wool at the center of operations."

A slight fire, originating in stored, unscoured wool occurred on August 20, 1909, in a wool warehouse in Boston, which seems to be typical of the action of spontaneous wool fires.

The wool was from a Western state, and at that time many of the shipments arriving in Boston were of "green" wool, the market conditions tending to hasten the shipments. The fire originated in a pile containing 2,000 to 3,000 pounds, which had been removed from the bags and on which the sorters had been at work some days. A peculiar odor had been noticed two days before the fire, which led the commission house management to assume that the wool was heating slightly, and if not given attention would be likely to be damaged by rotting. The owners of the wool were therefore advised to get the wool bagged up as soon as possible, which was promptly begun. This led to the discovery of the fire. As the wool was removed the temperature was found to increase until finally a red hot mass about eighteen inches in diameter was uncovered. When exposed to the air the glowing wool did not burst into flame. The fire was easily extinguished, but the heat and smoke had damaged the wool to quite an extent around the seat of the fire.

An examination of the wool near the fire showed that it contained much manure, and so samples were tested for spontaneous ignition to determine what connection, if any, the presence of this foreign matter had with the fire. The tests showed no excessive temperatures resulting, and it is assumed that the presence of the manure did not tend to cause spontaneous ignition or heating.

While there appears to be no doubt that wool may be subject to spontaneous ignition, it is interesting, in reviewing the data at hand, to note that they record no fires as having positively occurred in clean, whole fleeces. Also that clean sorted wools of the class containing a high percentage of natural grease appear to have contributed no evidence of such fires. Also that the usual tests for spontaneous ignition, when applied to the ordinary commercial wools, show no evidences of heating to the ignition point. These facts lead to the suggestion that after all many of the wool fires were very likely due to foreign material in the wool. The fact that a large percentage of the fires occurred in "skirtings," "locks" and "pieces," some of which are apt to be swept from the floors of sorting rooms, and in that respect somewhat partake of the nature of waste, seems to confirm this idea.

Such a large portion of all fires is due to "misplaced material" that it appears to be perfectly justifiable to attribute to this cause a fair proportion of the "spontaneous combustion" fires in wool. Sparks, matches and oily materials are as likely to get into a cargo of wool as of cotton, and these items cause a very large proportion of the fires in cotton. Further evidence of the presence of foreign materials in wool is brought out by a recent movement in the wool trade which had for its object the reformation of wool packing with a view toward the elimination of foreign matter and false packing. In a recent article in the journal above mentioned, the editor stated that, "Sticks, stones, dirt and all sorts of rubbish are found in American wool." This article voiced the recent complaints of the wool dealers relative to the presence of jute and cotton twine and other foreign materials in the wool for which they had paid as so much weight in wool. The jute fibers are very troublesome to the manufacturer, as the stray jute or sisal fibers spoil the finished cloth. One grower was reported to have used 120 feet of sisal twine in tying up a single fleece, the twine being, of course, weighed and paid for as wool. Such abuses led the wool dealers and manufacturers to take action, and in 1908 a circular was issued, signed by 27 wool houses of Boston, 6 of Chicago, and 26 of Philadelphia, stating that the signers would

thereafter refuse to handle fleeces tied with sisal twine, or wool tied with an undue amount of string. Any foreign matter, such as rubbish or cotton, might easily ignite when subject to the ordinary heating common to most all wool in bulk, and thus be the cause of some of the mysterious fires in wool.

Considering the features of the wool trade which affect the fire danger as outlined above, it seems highly probable that some of the fires which have occurred in baled wool were due to spontaneous ignition of rubbish or of fibers other than wool which by accident or otherwise had become mixed with the wool. If wool is to be habitually handled in this condition, spontaneous ignition may be accepted as one of the inherent hazards of insuring wool, but for the present it seems safe to say that the danger is confined to only a small part of the wool shipments.

The above remarks cover wool as marketed. After it reaches the mill many processes tending to create a possible tendency to spontaneous ignition may take place, such as scouring, oiling, drying or mixing with other fibers.

## A "PURE TEXTILE" LAW.

The American newspapers have published a series of rumors from Washington of a contemplated "Pure Textiles" Bill, under which it will be compulsory for all dealers in textiles, whether manufacturers, merchants, or retailers, to label their goods so as to show their composition in percentage. On first sight such a bill seems to offer a needed safeguard against misrepresentation, but it may be questioned whether a precise knowledge of the composition of a cloth is of much value to the consumer. A suit is bought either for its appearance or for its wearing qualities, or for both, and the fact that wool costs more per pound than cotton is no proof that the pure wool fabric is better in either of these respects than one containing an admixture of cotton. It may be not so good. Cotton is unquestionably a more durable material than wool, and the appearance of a cloth depends entirely upon its individual structure.

In a certain cloth which has taken its place during the last two years as a staple Bradford make the weft is cotton, and gives the fabric its distinctive luster by curving the wool warp into a round "twill." A wool weft, costing twice as much as the cotton, produces, if woven with the same warp, a cloth flat and dead in appearance compared with the union fabric, and actually of less market value. The effect of a "pure textile" law would be to depreciate in the eyes of the public all union goods in which a cheap material is combined with a more costly one, and its operation in regard to cloths of the style referred to would be most unjust. But there is a further difficulty; for it would be necessary to distinguish between "pure wool" and "shoddy," or remanufactured wool. In this connection a long article appears in the "Textile World Record" contending quite soundly that while the proportion of animal and vegetable fibers in a fabric may be readily distinguished, it is impossible to say how much of a cloth is "shoddy" and how much technical "pure wool." To analysis, the one is as pure wool as the other. A man of experience in the Batley district could offer an opinion, and he would probably be approximately right, but such an expression of opinion could hardly be sufficient ground for criminal proceedings. That legislation is required to prevent fraud on the part of the vendor is not denied. The "Textile World Record" cites the British Merchandise Marks Act as an excellent model on which to frame a measure.—The Manchester Guardian.

There was a large decrease in the sheep flocks of the United Kingdom in 1910 as compared with 1909. In Great Britain there are 517,279 sheep, and in Ireland, 153,842.

The United Kingdom supplied $40,000 worth of hosiery to Jamaica as compared with $5,000 from the United States, and in cotton piece goods the British sales were $1,100,000 against $450,000 American.

## A COTTON SPINNING MILL.

*From Uhlands Technische Rundschau.*

(Translated from the German by the Editor of the Textile World Record.)

The plan of a cotton spinning mill recently built in Tarsus is shown at Figs. 1 to 11, the convenient arrangement of the various departments being a feature of the plant. The building is one story with a monitor roof. The different processes follow each other in consecutive order lengthways of the building, parallel with the beltway. This enables the shafting to be very conveniently arranged with direct connections from the power plant. Future enlargements of the mill can be easily obtained by increasing the width of the building.

The ground plan, Fig. 3, shows the rooms to be rectangular with annexes for various purposes. The work rooms begin with a large store room, $K^1$, for raw cotton, one bay wide and four bays long. Next to this room is the mixing department, G. This contains the mixing chambers. The bales are stripped in store room, $K^1$, and taken to the bale breaker, f, from which they are carried by a lattice which rises nearly to the ceiling. From this they are taken to the cross lattices which carry them to the respective chambers. Separate from the distributing lattices are distributing aprons carrying the cotton to the openers, which are combined with the beaters, e. These machines are located in the room, G, between the double beaters, d. A glance at the arrangement of the machines in this room shows that an opener is combined with two beaters. There are 12 double beaters, 6 of them coarse and 6 fine, so that the plant is adapted for both fine and medium yarn. The machines in this room are set on solid foundations. A substantial wall divides the store rooms, mixing and picking rooms from the preparing room, E, and the spinning room. In room E, are 3 rows of top flat cards, g, each row consisting of 29 machines, making a total of 87 cards. The cylinders are 58 inches in diameter and 30 inches wide. Next to the cards are 12 drawing frames, h, each having three heads and seven deliveries. The shafts of the cards run lengthways of the mill; those of the drawing machines, crossways. This arrangement facilitates the transportation of the cans. Next to the twelve drawing frames are ten coarse frames, i, having 108 spindles and a gauge of 8 inches. The intermediate and fine frames are distributed as shown in the plan. The seven intermediate frames have each 132 spindles and a 6 1/2-inch gauge. The sixteen fine frames have 164 spindles with a 5 1/2 gauge. Next to these frames are thirty-six ring spinning frames, k, each having 432 spindles, and a 2 5/8-inch gauge. Next to the spinning frames are 32 reels, e, each arranged with 40 skeins. The plant has 15,552 ring spindles and is adapted for fine warp and medium filling yarn.

In the annex, F, connected with the spinning room by three doors, are nine yarn presses, m, with tables for packing yarn. In an annex at the left are two main entrances, A and $A^1$, leading to the spinning room and the offices. Between the two upper offices is a watchman's room, C, provided with large windows to enable the attendant to see all persons who may pass. The offices, B and $B^1$, are also separated from the passageways by glass partitions. Beyond the watchman's room, along the side of the spinning room, is the beltway, D. At one end of the beltway is a passageway intended to connect the present spinning room with any addition to the present plant. The beltway extends to the boiler house, where a 450-h. p. motor, a, is installed.

As shown in Fig. 3, another motor, $a^1$, indicated by dotted lines can be installed in case the plant is enlarged. Next to the engine room is the repair shop, $J^1$, equipped with lathes, drills, blacksmith and carpenter shops. In the room, $H^1$, is a continuous current dynamo. The room, H, serves as a dust room. The longitudinal cross section of the mill, Figs. 1 and 2, show the style of construction. At about the middle of the beltway is a water tower, $L^2$, Fig. 5, from which the sprinklers are supplied. Figs. 6 and 10 show the construction and arrangement of the tower. Fig. 6 is a cross section of the beltway from which stairways lead to the upper room in the tower and to the reservoir. The roof is of the regular cement and

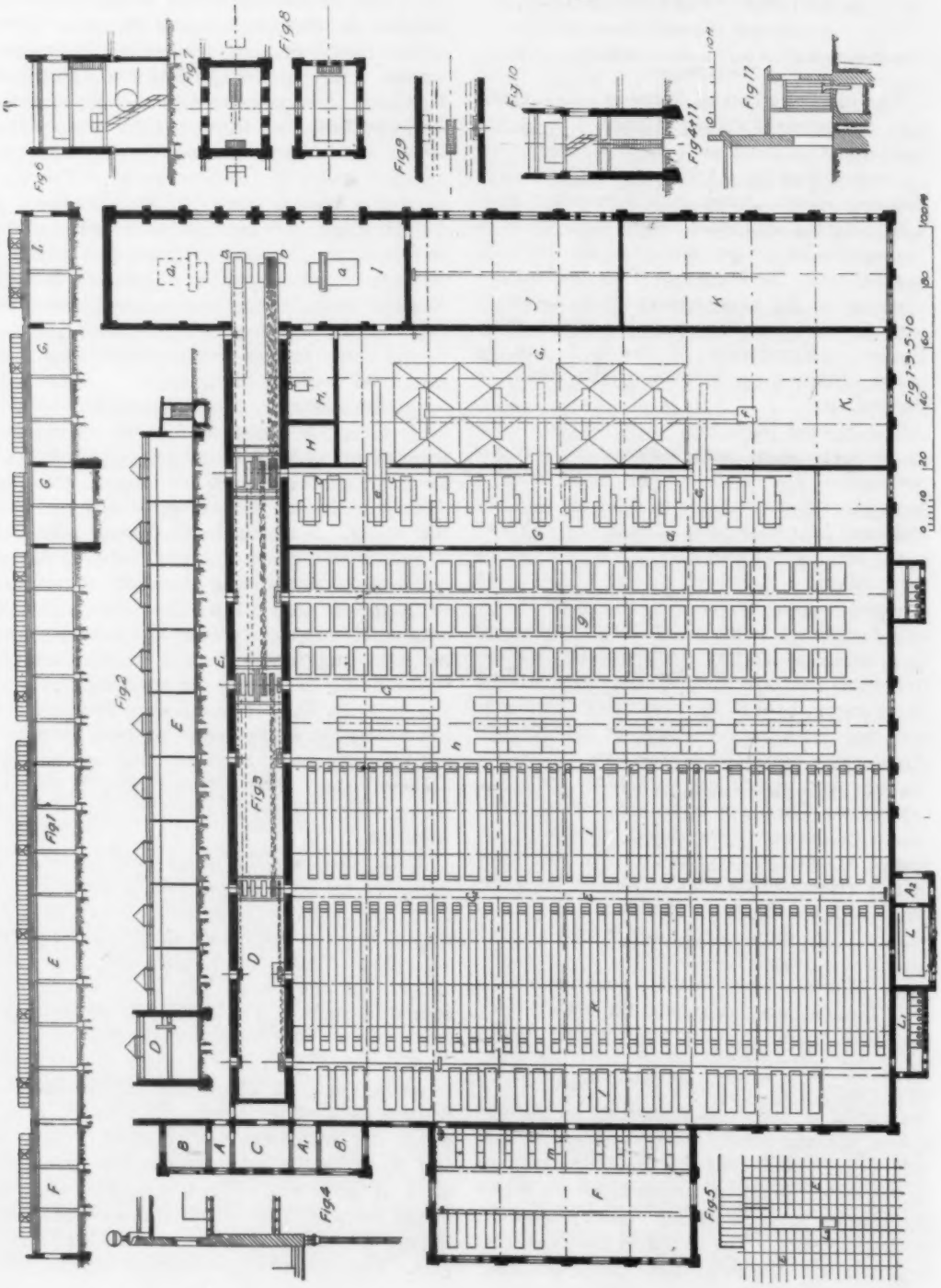


Fig 6
Fig 7
Fig 8
Fig 9
Fig 10
Fig 11
Fig 1-2-3-5-10
Fig 2
Fig 3
Fig 1
Fig 4
Fig 5

iron construction. Fig. 7 shows the location of the stairways. Fig. 8 is a plan of the reservoir room. The reservoir is 22 feet 6 inches long, 10 feet wide and 5 feet 5 inches high, having a capacity of 1,220 cubic feet. Fig. 9 is a plan of the beltway at the point where the water tower is located. Fig. 10 is a cross section of the tower. Fig. 11 is a section of the toilet rooms. Fig. 4 is a section of the water tower, also showing the construction of the posts in the spinning room. The main shaft in the engine room carries a 15-groove pulley and two-inch ropes. Two of the ropes drive a shaft which supplies 60 h. p. to the repair shop. This shaft makes 400 revolutions a minute and supplies power for the dynamos, repair shop and dye house, K. Thirteen power transmission ropes run from the main driving pulley in the engine room to the first counter shaft, c. This shaft runs across the mill and drives the mixing and picking machines. It makes 150 revolutions per minute and supplies 100 h. p. Two transmission ropes run from this shaft, c, to the counter shaft which drives the cards, supplying 50 h. p. and making 250 revolutions a minute. Power is carried from shaft, c, by ropes to the shaft, $c^1$ and $c^2$. Shaft $c^1$ and $c^2$ deliver 30 h. p. and make 250 revolutions a minute. The power is run from $c^1$ to a counter shaft which drives the drawing frames. The shaft driving the spinning frames transmits 185 h. p. and makes 400 revolutions a minute. From this shaft the power is distributed to counter shafts as shown.

## HOT AIR DRYING ON BACKWASHERS.

*BY JOHN BROWN.*

While in recent years improvements have been made in many types of machines used in wool combing, that is, scouring, carding, combing and finishing, the backwashing machine has in its main working parts or processes, remained nearly the same as when combing by machinery was first introduced. The wool is passed through two bowls, squeezed by heavily weighted rollers to rid it of most of the sud, then dried by contact with heated cylinders, before passing through the gill box to blend the various ends into one sliver.

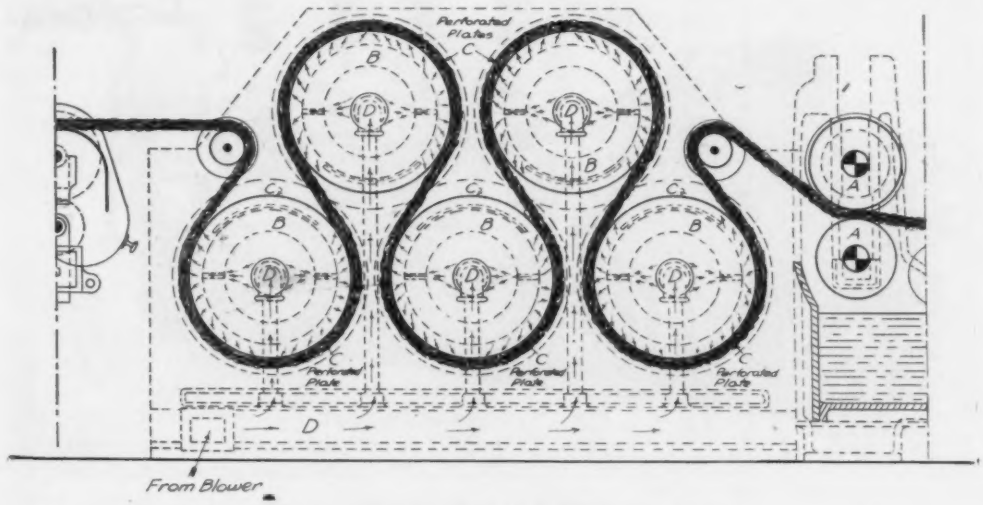



FIG. 1. A SECTION OF A HOT AIR BACKWASHING MACHINE.

At the present time the great difficulty in obtaining an increased output has been the drying, as wool and other animal fibers suffer by direct contact with hot metallic surfaces. The only way to increase or maintain the output with stock that is difficult to dry, is to increase the number of cylinders over which the wool has to pass.

Some years ago a backwasher was patented which, in addition to the cylinders had a fan blowing air heated by auxiliary steam chests laid at the base of the machine. By this method it is possible to get the same amount of drying power, with the cylinders at a lower temperature. The fact remains that the main part of the drying was done by the slivers coming in contact with the heated surface of the cylinders and as a result the core of the slivers is very little affected. An improved machine has recently been put on the market by Prince Smith & Son which dries the slivers, not by contact with a heated surface, but by the passing of hot air through the slivers, thus drying the whole of the stock uniformly. A properly built backwasher consists of three main parts, that is, the cleansing, drying and gilling. These improvements affect only the drying portion of the machine. Those firms whose backwashers are in fairly good order need only replace the cylinder part to bring them up to date, as the hot air drying process can be adapted to any make of machine.

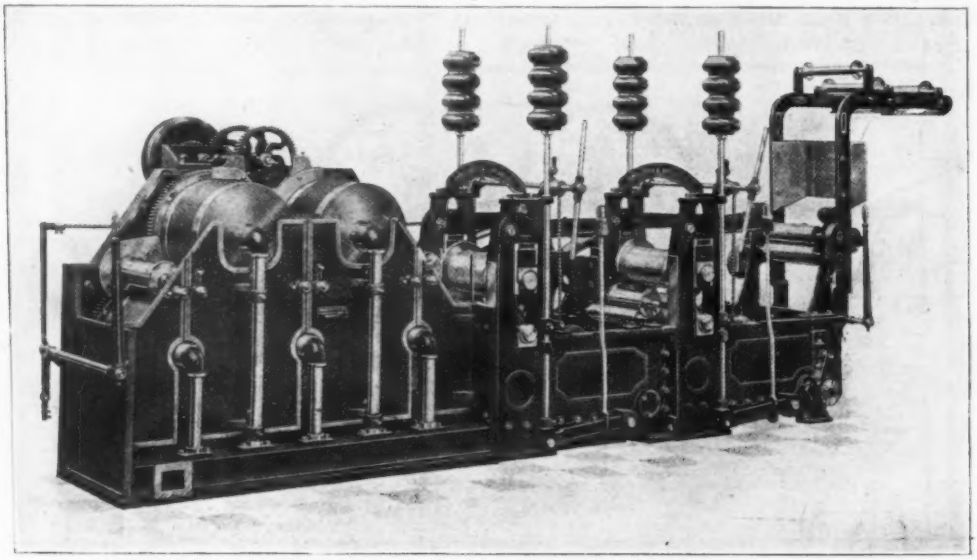


FIG. 2. THE DRYING PART OF THE MACHINE COMPLETE.

In nearly all the backwashing machines the principle is the same, but the object is gained by different methods. The principle, as stated above, is that, instead of irregular drying by pressing only the outer portion of slivers against a hot surface, all the fibers are equally dyed by hot air, which is forced through the slivers. This is accomplished by replacing the cylinders with perforated shells, which, although of the same shape and size of cylinders, are in no sense driers, but merely carriers of the stock from the squeeze rollers to the gill box. In the new drier it is possible, with a far less expenditure of steam, to get almost any amount of dryness without any danger of scorching, thus allowing either a heavier volume of stock passing through, or by running the machine at an increased speed to materially increase the output. The following figures show what the machine is actually doing: Particulars of a 5-cylinder hot air backwasher, single head, taken at the Atlas Mills, Bradford:

No. 1 machine: Length, 17 ft.; width 5 ft. over all. Size of drying cylinder, 1 in. by 14 1/2 in. Squeeze rolls, 9 in. diameter. Backwasher gill, single screws, 1/2 in. pitch, 12 faller up, 6 down. Eleven pins per inch, 16s wire gauge, 310 drops per minute. Draft 5. Number of slivers up, 32. Total

weight of same for 5 yds., 56 ozs. With 32 ends the weight turned off is 185 lbs. per hour, or 1,850 lbs. per day of 10 hours. Speed, 800 ft. per hour. If required, the 32 ends can be increased to 40, as the machine will easily dry 230 lbs. per hour. Quality of stock, 60s Botany. The first and second gill boxes after backwashing have double thread screws 7/16 pitch, 12 pins per inch, 16s wire gauge, 400 drops per minute, 16 fallers up and 8 down. All the above particulars relate to single head. With double head there is twice the output.

Fig. 1 shows a section of the new machine. A, second pair squeeze rollers. B, circular steam chests. C, perforated shells, which replace the ordinary cylinders. D, pipes conveying compressed air from Root's blower to the interior of steam chests. $D^1$, conduit to pipes, D. Fig. 2 shows the drying part of the machine complete.

## DRAFT PROPORTIONING.

*BY BOLSTER.*

On machines using drawing rolls, the proportion of draft between each pair of rolls will influence considerably the character of the work produced. On machines having four pairs of drawing rolls there are practically three intermediate drafts which are intended to assist in the reduction of the stock. There may be one or two others, but these are really only tension drafts used to prevent the fibers running slack between two points. The intermediate drafts in the above case may be referred to as the front, middle, and back drafts; meaning drafts between front and second rolls, second and third rolls, and third and fourth rolls respectively. An approximate method of proportioning a total draft between the three points given is as follows:

1st. Use cube root of total draft for middle draft.

2d. Use square root of middle draft for back draft.

3d. Then total draft divided by (middle $\times$ back drafts) = front draft.

Example. If a draw frame has a total draft of 8, how would it be divided between 4 drawing rolls?

Answer. The cube root of 8 equals 2 for middle draft; and square root of 2 equals 1.4 for back draft; then $8 \div (2 \times 1.4) = 2.86$ front draft.

When it is necessary to change the total draft considerably, the intermediate drafts may be changed proportionately as follows:

Divide required draft by present draft, and extract cube root of product. Then multiply cube root by the present draft between any pair of rolls, and the result will represent the required proportion of the new draft to be used between said rolls.

Example. Suppose a draw frame has a total draft of 8, which is divided between the 4 pairs of drawing rolls as follows: Between front and second rolls, 2.86 draft; between second and third rolls, 2 draft; and between third and fourth rolls, 1.4 draft. Find the intermediate drafts for above machine if the total draft is to be 6 instead of 8.

Solution. The required draft, 6, divided by the presnt draft, 8, gives .75. The cube root of .75 is .91, which is to be used as the multiplier or constant, thus:

$2.86 \times .91 = 2.603$ new front draft.
$2.00 \times .91 = 1.82$ new middle draft.
$1.40 \times .91 = 1.274$ new back draft.

When only three lines of rolls are used, or only two intermediate drafts are necessary, and the proportion is to be changed to conform to a given total draft, the same rule may be applied except that after the required draft has been divided by the present draft, the square root of the result must be used as the constant in place of the cube root.

## SHUTTLE KISSING.

Those of our readers who can carry their minds back to the literature of childhood will remember the story told by the Brothers Grimm in their collection of folk tales concerning the three ugly fairy godmothers. One of these is described as having the appearance of suffering from what would now be known as acromegaly, and when asked why her under lip was so large she replied, "From licking the thread." Weaving is one of the industrial processes which have not changed except in a few details from the prehistoric times of the first weavers, and as a proof of this we note that an acute controversy is going on in the North of England

textile districts as to certain diseases arising from what is known as "shuttle-kissing."

This practice is due to the fact that the end of the weft thread has to be passed through a hole in the side of the shuttle, exactly as an ordinary sewing thread is passed through the eye of a needle, and the manner of doing this is for the weaver to apply his lips to the hole and in that way to suck the end of the thread through. This sucking is sometimes done by the weaver himself and sometimes by his "tenter," or assistant. It is obvious that in case either of the operatives is suffering from tuberculosis or possibly some other infectious disease such infection may easily be conveyed by the medium of the shuttle from the one to the other.

More than this, the yarn as wound on the bobbin which rests in the shuttle is covered with fluff, which accumulates in the eye of the shuttle, and is inspired when the end of the thread is sucked through, thus setting up pulmonary irritation; and in addition to the irritation caused by the fluff the weft is stated to be treated with china clay and sizing, the latter containing poisonous substances, and particles of both are inhaled in the same way. In the case of colored fabrics the dyes are an additional source of danger.

At first sight it seems as though there should be no difficulty in applying some mechanical contrivance for making the end of the thread pass through the eye, but in alterations in any industrial mechanical process there are two factors which must be taken into account; one, the opposition of the masters, and two, the opposition of the workers. Anything which necessitates increased expenditure or impedes the rapidity of the process has a tendency to lessen production and so to decrease wages, and such are the difficulties which stand in the way of alteration. Apparently, however, two Preston inventors—Dr. H. A. Murphy, of Fulwood, and Mr. J. T. Simpson, the engineer of the Preston tramways, have brought out a machine which obviates the sucking of the end of yarn by the mouth. A detailed description of this machine is not before us, but we gather from an article in the "Cotton Factory Times" of December 23, 1910, that it is a pneumatic sucker to which the eye of the shuttle can be applied. A representative of the journal in question saw the machine tried "about eight times, and it acted perfectly upon seven occasions."

Here, then, may possibly be the solution of the problem. If the use of this machine, after its virtues have been confirmed, were made compulsory in all mills within a reasonable time limit—say two years (for we learn that that period is the life of a shuttle) —supposing that any alteration in the present style of shuttle had to be made, neither masters nor workmen could complain of any serious grievance, if, indeed, of any at all. The initial cost of setting up the apparatus would not, we understand, be heavy, and it is asserted that it does not in any way lessen the rapidity of production.—The London Lancet.

## THE SIZE OF ENGLISH WOOLEN AND WORSTED MILLS.

*(By Our Special Correspondent.)*

A reader asks for some idea of the ordinary size of British worsted and woolen mills. Perhaps the most helpful thing is to supply particulars of what we consider large mills. All efforts along this line must be imperfect because there are no unimpeachable statistics and differences in counts spun, cloths woven and processes carried on upon the premises, may make individual mills appear from a mere table of looms and spindles, much less important or more important, than they are on a full reckoning. Considerations of this kind influence many firms to refuse information as to the size of their plant. Despite this it will be possible to give at least an idea.

In the Bradford trade we reckon Salts of Saltaire (83,000 spindles, 600 looms) and Fosters of Queensbury (60,000 spindles, 750 looms) as tremendously large spinning and weaving firms and call them the largest we have. We think Priestleys, Ltd. (1,400 looms) a very great weaving concern and reckon worsted spinners like Daniel Illingworth's (probably 60,000 to 70,000 spindles), J. Smith's (50,000 spindles) and Jeremiah Ambler's (40,000 spindles) as concerns of the first magnitude. Ickringill's may have more

spindles than any of them, but in the scale of final importance bare numbers are not enough. Some of the spindles are "spinners," others are "twisters," some are turning-off nothing but high counts and some nothing but the coarsest. To quote a Bradford yarn agent on the subject: "If anybody tells me a spinner has 25,000 spindles, I regard him as an important man. If the spinner has 30,000 I consider him to be in a really large way of business. And I do that without inquiring how the number is made up; that is to say how many spindles are producing singles and how many are simply folding." As for the average size of worsted spinning mills in the Bradford trade is concerned, one is well over the mark in saying 20,000 spindles. There are scores of spinners who have five or ten thousand spindles only and no combs or looms.

The weaving firms thus far mentioned have been in the dress goods trade. In the coating business Drummond's, Bradford (34,000 spindles, 300 looms) ranks as an exceedingly large firm, and is probably the largest one making tropical worsteds in large quantities to a design, its particular specialty. The Leigh Mills Company (13,000 spindles, 500 looms) has larger weaving, but smaller spinning, capacity and it serves as another type of the largest men's wear mills. In Huddersfield, as is well known, the three largest mills making fine goods are Martin's, Kaye & Stewart's and Learoyd Brothers, who have 400, 300 and 280 looms respectively. These are the mammoths of the trade and few of their competitors have over 100 looms, while many making somewhat the same class of goods have only 30 or 40, out of which they make a satisfactory living. In Huddersfield, Halifax and Bradford there are dozens of firms with not more than 40 coating looms.

In England, as elsewhere, the carded woolen industry is self-contained and the mills with the big battalion are the ones making the lower classes of goods. The largest single woolen mill in England is by general consent that of J. E. Crowther, Marsden, with 30,000 spindles and 440 looms. This is run in competition with numerous other mills belonging to the Crowther family, principally to make the Colne Valley tweeds that are sold so largely in Canada. These Crowther mills run night and day so that their effective capacity is thus nearly doubled. A labor copartnership concern, J. T. & J. Taylor, Ltd., Batley (15,000 spindles, 570 looms), the blanket makers, Wormalds & Walker, Dewsbury (17,000 spindles, 660 looms), along with Stubley's of Baetley, are the Goliahs of the heavy woolen district. In the low carded woolen line, a firm with 100 looms is a large one and, owing to special circumstances of long credit, a Scotch firm has to be a pretty wealthy one to run as many as fifty looms on high class tweeds.

The question as to the normal size of English mills is the preface to another. The questioner asks what hinders the formation of corporations to combine existing mills and take them over. The matter admits of more than one answer and is an affair in which history has a voice. There is experience to refer to, which to treat fully would occupy a large amount of space. A glance, however, may be permitted at the history of textile combinations in England.

In 1896 the thread combine, J. & P. Coats, was formed by amalgamating the cream, and nothing but the cream, of the sewing thread industry. Encouraged by example, the English Sewing Cotton Company, combined out of Coats' leavings, was formed in the succeeding year. The Fine Cotton Spinners' Association followed in 1898 and after it came the Bradford Dyers' Association, which is soon to have an American branch. In 1899 the Yorkshire indigo and scarlet dyers, the chief velvet and cord dyers, the wool combers and calico printers formed their association. In 1900 there was a still larger spate of combinations, for the slubbing and yarn dyers, bleachers, velvet cutters, fustian cutters, Leeds dyers, as well as a shoddy combine and a knitting yarn combine were formed. There was none in 1901, 1902 or 1903, but a felt trade combine followed in 1904, since when there have been no others.

The recapitulation shows that for a time combinations were the rage. Led on by early successes the public had come to think the day of combination was at hand and that

all industrial combines were to be successful. They were so sincere in this belief that the preference stock in the rotten Yorkshire Woolcombers' Association was applied for ten times over and the debentures three times over. The combers paid no dividend at all and lost the entire share capital, the printers paid none for three years and the slubbers and yarn dyers none for five years. The indigo dyers were in deep water in three years, the English Sewing Cotton soon fell into tribulation and the velvet dyers to save their necks wrote down their capital after two years' working. The combinations did not all fall, but they brought disillusionment and so far as is known to the contrary, the English investing public are still of the opinion that combination is not an infallible guide to financial success. Failure to keep the promises of the prospectus was bad enough, but not less influential in provoking feelings of disgust were the scandals and anxieties of that fevered time of overcapitalization, which caused the very word "combine" to stink. Looking at the characters of the trades which were merged into combines it is seen that ten out of the total sixteen are commission industries. The combers, bleachers, dyers, printers and velvet cutters for the most part treat other men's goods. The sewing cotton companies and the fingering yarn concern are sellers of branded goods for retail in the same form as they leave the mill. The fine counts cotton spinning combine has something of a monopoly in spinning Sea Island staple and the shoddy combine, the Extract Wool & Merino Co. ($1,000,000), and the feltmakers' combine, Mitchell, Ashworth, Stansfield & Co. ($3,350,000), are both unions of and similar firms in their own lines.

Substantially in all cases these amalgamations came about in trades where price-agreements had been tried and had proved relatively or absolutely a failure. The dyers, combers, bleachers, etc., were always falling into line to keep up a standard price and were always falling out again. The sewing cotton companies had also tried, and failed, to make standard prices a success and the felt trade had suffered heavily from home and foreign price-cutting. The Fine Spinners comes nearest in general respects to a worsted combine. The Fine Spinners with their $37,250,000 of capital would be relatively a small affair in comparison with a corporation formed to take over the bulk of the English worsted industry.

A meeting to consider the formation of a worsted spinners' trust was held in Bradford in January, 1900, in the heyday of the amalgamation boom. The capital proposed was $90,000,000, but the combine was not formed then and there is no known reason for supposing that a new attempt could succeed now. Perhaps weak firms might be glad to sell out, but the strong men and strong firms would require much convincing. Bradford may be wrong, but it holds the opinion that you do not directly increase economy and efficiency by increasing size. Nobody believes that the results in the best mills would be improved by enlarging the plant five, ten or twenty-fold, or that there is any better management than can be given by a man who knows perfectly his own business, has organizing ability and means, and who is in absolute command of a large but not unwieldy concern. Everybody has some one mill in mind by whose management he is prepared to swear and everybody knows that a preponderant combine could not be formed without paying dearly for plants with an efficiency far below the maximum. To accept the teachings of history, these unremunerative branches would have to be closed and the strong to carry these as burdens on their own backs. Meantime, the able men outside a worsted spinning combine would doubtless be increasing their plants. On these terms neither spinners nor investors want a worsted combination.

One does not know whether the reader who asks the questions adequately realizes the complexities of the worsted yarn business in England. To the outsider yarn is yarn, in the same way that grass is just grass. The closer observer finds that no two blades of grass are exactly equal and in a modified way the same is true of yarn. There are yarns which can be interchanged with each other, but every one of the three hundred and odd

producers has his own individual mixings and methods. Numbers tell little, descriptions tell even less. Worsted yarn is not a standard, but an individual article, made in accordance with each man's private ideas of economy and with the myriad needs of the customers to whom the spinners sell. If yarns are not standardized, still less are cloths, of which the permutations and combinations are infinite. This variety has its good effects as well as its superficially uneconomical ones. Competition is limited as between man and man. A spinner is not competing for a given order against 299 other spinners, but only against the limited number who devote themselves to identically the same objective as himself. Then diversity of yarns means diversity of cloths and flexibility in time of trade changes.

Those who wish to know how it is that English firms in the textile industries avoid the necessity for combination must be referred to this specialization of function for part of the answer. Specialization explains how a large number of concerns can co-exist without violent collision. The man prejudiced in favor of combination may point out that specialization favors the opportunity of forming sectional combines in specific branches of the spinning business. It has to be observed, however, that the industry is in a large number of hands; that it is one thing to amalgamate twenty firms and a different thing to unite two hundred; and that one has to reckon not only with the actual, but with the potential specialists who will assuredly flock into any department which a combine is good enough to make remunerative to them. Inasmuch as spinners' customers want no combine and there is no visible public market for shares and as spinners themselves are in no hurry to amalgamate, a coalition cannot be called either necessary or desirable. What applies to spinners applies with added force to those we call manufacturers, i. e., producers of woven goods, and nothing less than a revolution can make a combine practicable. For a year or two past woolen and worsted people in England have been doing quite well as they stand.

## COTTON GROWING IN NIGERIA.

*BY E. D. MOREL.*

(In Manchester Guardian.)

Zungeru, December 3.

You commissioned me to describe to you, exactly as I found them, the existing conditions and the future prospects of the cotton-growing industry wherever I had occasion to observe them in the course of my journey in these two Protectorates. At Illushi, as explained in a previous article, I found a state of affairs, as it seemed to me, of future promise. A model little station; native buying agents sent throughout the Ishan country working in cooperation with the native chiefs; the Association's books—freely placed at my disposal—showing that the natives were duly being paid their penny a pound for seed cotton, in cash. Illushi is the only cotton center in Southern Nigeria I have visited as yet.

I cannot say that I am equally impressed with what I have ascertained in Northern Nigeria so far. I say "so far" because further investigation may modify impressions. On the other hand, whatever I may see later on in the great agricultural districts of Zaria and Kano, where cotton has been grown for internal consumption for at least a thousand years, can hardly alter certain facts which I now propose to set forth. It has been, I think, generally understood at home (the writer, who has long followed with sympathetic interest the laudable efforts of the Association, shared the view), that the natives of Northern Nigeria were being paid, as in Southern Nigeria, a penny per pound in cash for their cotton.

I was surprised to learn at Lokoja, at Baro, at Badeggi, and at Bida on my way to Zungeru, that this has not been the case, and what I learn here confirms the intelligence previously gathered at those places. In the circumstances it is not surprising that the export trade in cotton has made such slow progress in Northern Nigeria. I am not sufficiently in touch with the fluctuations of the cotton market at home to know whether cotton paid for here at a penny a pound in the seed in cash will leave a profit at your

end, assuming the quality to be as good as, for example, the cotton which is produced in the Ishan district of Southern Nigeria.

But I am quite clear on one point, and that is that no export industry in cotton has the slightest chance of taking root in Northern Nigeria unless a minimum of one penny per pound in cash is paid. It must never be forgotten that a weaving industry exists virtually all over Northern Nigeria, and whatever may come about ultimately, that industry will require for very many years to come to be fed. Its disappearance before the inroads of the manufactured article from Manchester is not within measurable distance. Now, save in very exceptional cases, a penny per pound is the lowest price which the native grower of cotton has the expectation of receiving for his produce in the local markets. He is in many parts actually getting more than a penny a pound today. It would be a mistake to assume on this account that the Association cannot hope to compete with the local buyer, because the native greatly appreciates a secure and steady market, and if he can be sure that a penny a pound in cash is always forthcoming from the white man for cotton, he is assured of an additional fixed outlet which he will take advantage of, given activity and energy by native buyers perambulating the country on the Association's behalf. But the public at home should thoroughly understand that to expect the native producer to sell cotton to us for anything less than a penny a pound in cash when he can get its equivalent or more from the native consumer is out of the question. He will not do it willingly, and any form of coercion would be as repugnant to the British Cotton-Growing Association whose whole conception of work has been based on the right lines—as it would be intolerable to the Administration of Northern Nigeria.

The official returns for the export of cotton from Northern Nigeria since 1905 have been as follows: 1905, 24 tons; 1906, 150 tons; 1907, 120 tons; 1908, 42 tons; 1909, 30 tons. What the output will be this year I cannot estimate. I was informed at Lokoja —where the Association has a ginnery—that 120 bales had been shipped this year, and that a few more might be before the end of the year. I asked for the 1909 figures, but could not obtain them. The first bale ginned at Lokoja was in February, 1908. The cotton brought in there is from the Kabba district. I was told at Lokoja that the Association was establishing buying centers in and around Zaria, and that a large ginnery was about to be despatched to that place. I was also informed that the Association contemplated opening operations up the Benue, where the soil is generally richer than in the true Hausa States.

The whole question, so far as Northern Nigeria is concerned, is still so entirely in the experimental stage that no really accurate statistics are available as to the weight of cotton which an acre of land will produce in this country in given districts. The highest estimate I have yet heard is 450 lbs. seed cotton and the lowest 100 lbs. As I have previously stated, the export industry has had no chance hitherto, owing to the fact that the native has not been able to get a penny a pound in cash, but only in trade goods (and for a time only three farthings in such goods).

It would seem that the error committed has at last been recognized, because while I was at Baro last week the Resident showed me a telegram he had just received from headquarters to the effect that the Association had cabled its willingness to pay a penny a pound in cash in the future. After ascertaining, in my presence, from the Niger Company's representative (the Niger Company act as agents for the Association in Northern Nigeria) that the latter had received similar instructions, the Resident stated it to be his intention to make the fact widely known. One may hope, therefore, that a new leaf has been turned.

There can be no doubt of the interest taken by Sir Henry Hesketh Bell and the entire political staff of the Protectorate in this question. The Government is, indeed, at Sir Hesketh Bell's initiative, adopting a series of practical measures on its own account which

speak for themselves. In ten different centers two separate half-acre plots have been simultaneously planted with cotton, in order to secure from a wide expanse of territory something like a systematic series of reports. The seed used is one native kind and one Nyassaland variety. In each case the Resident has been asked to give his special attention to the experiment. That the Resident in the Bida division was doing so I can personally vouch, and there the crop looked fairly healthy. I cannot say that it does here at Zungeru, but the soil of Zungeru is hardly fitted for cotton. The Government has also started an experimental plantation on a larger scale near Zaria, and appointed a member of the staff with experience of cotton-growing in other parts of the world to give his whole time to the subject. The movement has undoubtedly a friend in Sir Hesketh Bell, who is devoting much labor and trouble to it.

## THE COMPARATIVE TRIAL BALANCE FOR A TEXTILE MILL.

*BY H. A. FROOM.*

The monthly trial balance purports to be a verification of the correctness of the postings to a double entry ledger or set of ledgers. This is usually the extent of an accountant's claim for it, but it can be made to serve far more important ends if properly constructed when it becomes a species of periodically revised working plan showing the foundation and structure outline of the business besides giving some idea of the march of the work in hand.

Ordinarily there is a lack of uniformity in the presentation of the balance, there being no defined lines drawn between assets, liabilities, expenses or income; there is no suggestion as to whether a profit has been earned during the month or not, and there is no means of comparing today's standing with any other period in the history of the concern without reference to the books or back balances. Another consideration of some value in the desirability of a trial balance conforming more to the structure of the public accountant or auditor's report of examination. The latter is generally framed in an excessively formal and elaborate manner, but the tendency is toward a less pretentious and more practical and understandable exhibit of conditions.

Regarding the first disadvantage, namely, the indefinite order in which all the accounts of a ledger are sometimes presented, it is essential that the main ledger be divided into the four main groups of assets, liabilities, expense accounts and income accounts. Once these are started right it should not be difficult to distinguish between them. The illustrations, explained later, will take care of these groups. Concerning the second consideration, or the showing or a profit or loss, it must be remembered that any statement as to profits earned or loss made is merely an estimate until a business has been actually wound up. It matters not how, when or by whom such a statement is prepared, at most, and at all times, with the above exception, it is but an expression of opinion based on estimated values. This being granted for fiscal year or half-year reports when actual stock of everything is taken, it is not beyond the bounds of imagination to attempt such an estimate at the end of every month. Nor is it unreasonable to expect acceptance of this estimate made within a 10 per cent. variation of what it would be were all of the stock taken repeatedly every month, which is unnecessary and a waste of time. On the other hand it is essential that track be kept of the following day by day: first, the amount of raw material used, outside of mill supplies, which are estimated on the per yard consumption unless they form an item of sufficient consideration; second, the amount of fuel used and third the number of process and finished pieces going through the mill every day. Thes three items form the bulk of the values to be estimated.

A worsted cloth mill in which the only processes are the dressing, weaving and finishing of cloth, will again be selected for illustration, as it was in the article on "Efficiency Book-keeping" in the January issue. For the purpose of arriving at the required estimates the writer's practice has been to base the values partly on the information given by the "process book," which book

was also described in the article above referred to, and partly on the yarn and piece goods stock books along with the finishing room book. The last named book has all pieces entered as soon as they come from the looms, and they are marked when either

CONDENSED TRIAL BALANCE Month of January 1911

| CAPITAL ASSETS | No. of Jany 1911 | No. of Jany 1910 |
|---|---|---|
| 1 Good Will | 25 000 00 | 25 000 00 |
| 2 Trade Marks | 5 000 00 | 5 000 00 |
| 3 Real Estate | 20 000 00 | 20 000 00 |
| 4 Buildings | 50 000 00 | 57 000 00 |
| 5 Machinery | 35 000 00 | 38 000 00 |
| 6 Tools & Equipment | 5 000 00 | 5 000 00 |
| 7 Furniture & Fixt | 2 000 00 | 2 500 00 |
| TOTAL | 142 000 00 | 146 500 00 |
| **INVESTMENTS** | | |
| 8 (Outside Holdings) | 75 000 00 | 70 000 00 |
| TOTAL | 75 000 00 | 70 000 00 |
| **DEFERRED ASSETS** | | |
| 9 Yarns | 90 000 00 | 98 000 00 |
| 10 Cloth in Process | 35 000 00 | 30 000 00 |
| 11 Supplies | 1 000 00 | 1 000 00 |
| 12 Fuel | 1 000 00 | 500 00 |
| 13 Unexp Interest etc | 2 500 00 | 2 500 00 |
| TOTAL | 129 500 00 | 132 000 00 |
| **CURRENT ASSETS** | | |
| 14 Finished Cloth | 40 000 00 | 28 000 00 |
| 15 Waste Headings & Rem | 500 00 | 500 00 |
| 16 Bills Receivable | 20 000 00 | 8 000 00 |
| 17 Accts | 22 000 00 | 30 000 00 |
| 18 Cash | 18 000 00 | 21 000 00 |
| TOTAL | 100 500 00 | 87 500 00 |
| **EXPENSE ACCTS** | | |
| Recapit on Sheet B | 115 000 00 | 116 000 00 |
| Process Cloth Decr by | - - - | 500 00 |
| Finished | 1 000 00 | 1 000 00 |
| TOTAL | 116 000 00 | 117 500 00 |
| **SUMMARY** | | |
| Cap Assets (See Above) | 142 000 00 | 146 500 00 |
| Investments | 75 000 00 | 70 000 00 |
| Deferred Assets | 129 500 00 | 132 000 00 |
| Current | 100 500 00 | 87 500 00 |
| Exp Accts plus Stk Decr | 116 000 00 | 117 500 00 |
| BALANCE | 563 000 00 | 553 500 00 |

| CAP STOCK & LIABILITIES | No. of Jany 1911 | No. of Jany 1910 |
|---|---|---|
| Cap Stock 1st Pref | 50 000 00 | 50 000 00 |
| - - - - | - - - | - - - |
| - - Common | 100 000 00 | 100 000 00 |
| Bonds Payable | 30 000 00 | 30 000 00 |
| M'gages | - - - | - - - |
| TOTAL | 180 000 00 | 180 000 00 |
| **RESERVES** | | |
| Various Funds | 10 000 00 | 5 000 00 |
| Surplus | 5500 00 | 68 200 00 |
| Employees' Insur | 100 000 00 | 75 000 00 |
| TOTAL | 165 500 00 | 148 200 00 |
| **ACCRUED & CURRT LIAB** | | |
| Interest Payable | 500 00 | 500 00 |
| Commissions | 2 000 00 | 2 500 00 |
| Bills | 50 000 00 | 50 000 00 |
| Accounts | 35 000 00 | 42 500 00 |
| Payroll | - - - | - - - |
| Dividends | - - - | - - - |
| Personal Accts | 500 00 | - - - |
| TOTAL | 88 000 00 | 95 500 00 |
| **INCOME ACCTS** | | |
| Recapit on Sheet B | 128 000 00 | 129 800 00 |
| Process Cloth Incr by | 1 500 00 | - - - |
| Finished | - - - | - - - |
| TOTAL | 129 500 00 | 129 800 00 |
| **SUMMARY** | | |
| Cap Stk & Liab (See Above) | 180 000 00 | 180 000 00 |
| Reserves | 165 500 00 | 148 200 00 |
| Accrued & Curr Liab | 88 000 00 | 95 500 00 |
| Inc Accts plus Stk Incr | 129 500 00 | 129 800 00 |
| BALANCE | 563 000 00 | 553 500 00 |

TENTATIVE PROFIT and LOSS STATEMENT

| | Year 1911 | Year 1910 |
|---|---|---|
| Loss this Month | - - - | - - - |
| - last 5 Months | - - - | - - - |
| Profit this Month | 2 175 00 | 2 250 00 |
| - last 5 Months | 13 500 00 | 12 300 00 |

shipped or put into stock so that the showing embraces the unfinished pieces contained in the finishing room. Both stock and finishing room books of some description are kept by most mills so there is no necessity to describe them. On the other hand if there is no stock clerk and the yarns on hand are expected to be kept track of by the office alone, it is necessary to take the boss dresser's daily report, which gives the cuts and yards dressed with the style numbers. From this it will be comparatively easy to sort the number of pounds of yarn used into the various counts and qualities by referring to the cost sheet which covers the necessary information for each grade if not for each style made. The filling winding will have to be reported to include count and quality besides the weight. Both these results are credited in the yarn book and all purchases are debited and in addition all yarns sent to and from the job dyers must be accounted for.

The process book is an excellent check

upon the stock by averaging the price on both yarns and goods and comparing the bulk figures with those obtained through other channels. The same book also gives the fuel used and waste made. By deducting the yards shipped as shown by the sales the finished piece goods stock is also checked in bulk. If the office records do not show the warps in the looms the information must be sought from the weave room blackboard at the end of the month. Warps on the floor in the weave room and those being drawn in must be included. The dressing room stock will be taken according to the system pursued of keeping stock of yarns, but if partly dressed warps are taken at yarn value, allowance must of course be made for labor expended on them plus an apportionment for overhead charges.

(To be continued.)

EXPENSE ACCTS SHEET A

| RAW MATERIALS & DYEING | Mo. of January 1911 | Mo. of January 1910 | 5 Months Ended January 31/11 | 5 Months Ended January 31/10 |
|---|---|---|---|---|
| 50 Yarns Silks Cottons etc | 18000 00 | 17000 00 | 67000 00 | 67200 00 |
| 51 Dyeing | 1000 00 | 1200 00 | 3000 00 | 3400 00 |
| TOTAL | $ 19000 00 | $ 18200 00 | $ 70000 00 | $ 70600 00 |
| **MILL EXPENSE** | | | | |
| 52 Winding ..... Labor | 300 00 | 350 00 | 1300 00 | 1350 00 |
| 53 etc | 500 00 | 550 00 | 1900 00 | 1800 00 |
| 54 Supplies & Expense | 25 00 | 30 00 | 100 00 | 130 00 |
| Total Dressing | $ 825 00 | $ 930 00 | $ 3300 00 | $ 3280 00 |
| 55 Drawing In .... Labor | 150 00 | 200 00 | 600 00 | 650 00 |
| 56 Weaving | 2000 00 | 1900 00 | 8000 00 | 7550 00 |
| 57 ..... Expense | 800 00 | 750 00 | 3600 00 | 3500 00 |
| 58 Supplies etc | 50 00 | 50 00 | 200 00 | 220 00 |
| Total Weaving | $ 3000 00 | $ 2900 00 | $ 12400 00 | $ 11920 00 |
| 59 Burling ..... Labor | 250 00 | 200 00 | 750 00 | 790 00 |
| 60 ... etc | 1650 00 | 1500 00 | 6500 00 | 6260 00 |
| 61 Supplies etc | 100 00 | 100 00 | 450 00 | 500 00 |
| Total Finishing | $ 2000 00 | $ 18000 00 | $ 6700 00 | $ 7150 00 |
| 62 Engineers & Firemen .. Labor | 120 00 | 120 00 | 600 00 | 600 00 |
| 63 Fuel | 280 00 | 250 00 | 900 00 | 975 00 |
| 64 Supplies | 30 00 | 35 00 | 150 00 | 135 00 |
| 65 Repairs | 20 00 | 115 00 | 100 00 | 170 00 |
| Total Power | $ 450 00 | $ 520 00 | $ 1750 00 | $ 1880 00 |
| 66 Gen'l Machinery Repairs | 150 00 | 500 00 | 300 00 | 750 00 |
| 67 ... Supplies | 50 00 | 55 00 | 200 00 | 240 00 |
| 68 Expense etc | 500 00 | 575 00 | 1800 00 | 1670 00 |
| 69 Strings Allowed | 50 00 | 40 00 | 180 00 | 210 00 |
| Total Maintenance etc | $ 750 00 | $ 1170 00 | $ 2480 00 | $ 2880 00 |
| 70 Superintendence | 250 00 | 250 00 | 1250 00 | 1250 00 |
| 71 Designers Salaries | 150 00 | 150 00 | 750 00 | 750 00 |
| Total Salaries | $ 400 00 | $ 400 00 | $ 2000 00 | $ 2000 00 |
| **MILL SUMMARY** | | | | |
| Total Dressing Room (previous) | 825 00 | 930 00 | 3300 00 | 3280 00 |
| ..... Weave | 3000 00 | 2900 00 | 12400 00 | 11920 00 |
| ..... Finishing | 2000 00 | 1900 00 | 6700 00 | 7150 00 |
| ..... Power | 450 00 | 520 00 | 1750 00 | 1880 00 |
| ..... Maintenance etc | 750 00 | 1170 00 | 2480 00 | 2880 00 |
| ..... Salaries | 400 00 | 400 00 | 2000 00 | 2000 00 |
| TOTAL | $ 7425 00 | $ 7720 00 | $ 28630 00 | $ 29110 00 |
| **MAIN OFFICE EXPENSE** | | | | |
| 72 Salaries | 250 00 | 250 00 | 1250 00 | 1250 00 |
| 73 Stationery & Supplies | 50 00 | 30 00 | 200 00 | 200 00 |
| 74 etc | 100 00 | 100 00 | 420 00 | 450 00 |
| TOTAL | $ 400 00 | $ 380 00 | $ 1870 00 | $ 1900 00 |

The exports of cotton to Canada in 1880 amounted to only 19,619 bales, compared with 120,744 bales in 1910.

The value of imports of cotton goods during 1910 was $66,473,143, compared with $62,010,286 in 1909, $73,704,636 in 1907, and $41,296,239 in 1900.

## AN IMPROVED LOOM SHUTTLE.

The shuttle shown in the accompanying illustrations has recently been patented and is designed to provide an improved tension on the yarn and means for easily threading it. The following is from the inventor's description of the device:

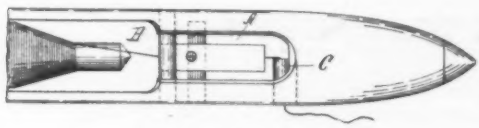



FIG. 1.

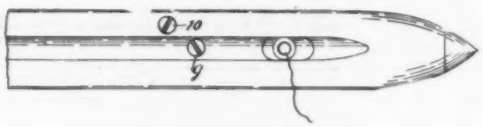



FIG. 2.

Fig. 1 is a top plan view of the thread delivery end of a loom shuttle with the improvement attached thereto. Fig. 2 is a side view of the thread delivery end of a loom shuttle looking at the thread delivery eye side. Fig. 3 is a longitudinal sectional view through the delivery end of the shuttle, and Fig. 4 is a sectional view of one of the leaf springs and its support.

In the drawings, 5 indicates the lower pin and 6 indicates the upper pin. These pins are supported in the side portion of the shuttle and extend across the throat portion, A, of the shuttle. The throat forms a passage connecting the bobbin cavity, B, of the shuttle with the delivery eye C.

The pins, 5 and 6, are each formed with the central holes, 7 and 8, respectively, and are each split longitudinally as at 7′ and 8′ respectively, and each of the pins, 5 and 6, have the slits, 9 and 10, respectively.

The leaf springs, 11, 11′, are each formed with the flattened frictional surface, 12 and 12′, respectively and with the enlargement, 13, which snugly fits the hole in the pin, 5 or 6, respectively, the end, 14, of the spring extending through the side of the pin, 5 or 6, as indicated in Fig. 4.

In setting up the structure two holes are bored in the side walls of the shuttle, the bottom leaf spring, 11′, is placed in the throat of the shuttle, the pin, 5, is passed through the lower hole, the enlargement, 13, being entered into the hole, 7, and that portion of the spring next adjacent thereto entering the split, 7′. The pin is now forced across the throat of the shuttle until the open end enters the hole in the opposite side wall of the shuttle. The same procedure is followed in securing the upper leaf spring, 11, to the pin, 6.

It will be readily seen that after the shuttle tension device is once assembled all the parts will be firmly held in their relative positions.

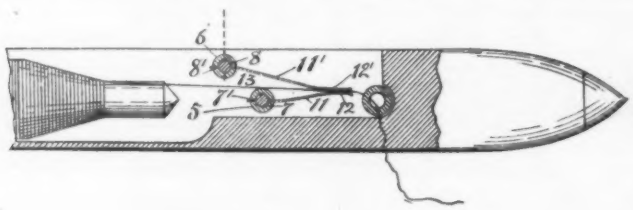



FIG. 3.

FIG. 4.

In threading up the shuttle the upper spring is turned up into the position indicated in broken lines in Fig 3, when the thread passing from the bobbin can be freely passed under the pin, 6, over the pin, 5, and thence to the guide eye, C, and through the same, after which the pin, 6, is turned to bring the spring, 11, in contact with the thread and exert a spring tension on same, the lower spring giving way to the desired point of resistance.

To facilitate the adjustment of the pins, 5 or 6, the respective slots, 9 and 10, are formed in the outer faces of said pins so that a screw driver may be used.

# Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

## FRENCH WORSTED SPINNING.

*BY ROBERT DANTZER.*

(Translated from the French by the Editor of the Textile World Record.)

(Continued from January.)

Feed Apron: This consists of narrow slats of wood fastened to strips of leather or strong cloth. The slats should be some distance apart in order to allow the air to circulate through the apron.

Feed Rollers: These rollers are generally two inches in diameter. Most modern French cards are equipped with two pairs of feed rollers. The first pair makes one turn per minute and the second pair one and one-half turns per minute. This results in a slight drawing of the wool. A circular brush is ordinarily fixed above the upper feed rollers. It is essential that the feed rollers be perfectly true and adjusted carefully so as to prevent the wool from slipping between them. This trouble also arises when the clothing becomes filled up. An imperfect feed also results when the feed rollers are not adjusted properly to the licker-in or when they are set too far apart by reason of the clothing being too short.

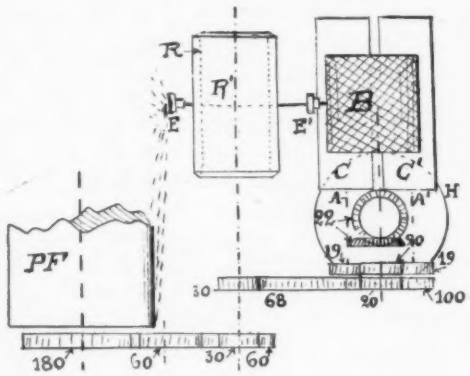



FIG. 1

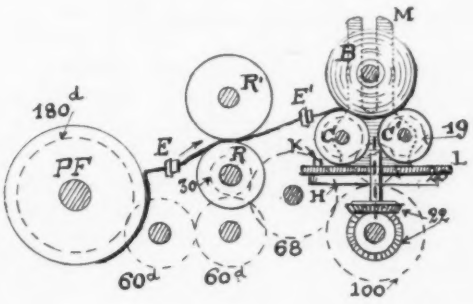



FIG. 2

Lickerin: This roller is about 12 inches in diameter and runs at a speed of 15 to 30 turns a minute. It takes the wool from the feed rollers and spreads it without breaking the fiber or rolling it up. It is necessary that the clothing should be in good condition, that is to say, the wire sharp and clean to the leather, all the teeth being regularly set. When the clothing becomes damp or covered with dirt, the wool is not opened properly and the carding is defective. The wire should not be too long nor bent too much. If the wire is too long the wool remains at the bottom of the clothing, whereas it should be held on the surface. When the wire is bent too much the wool accumulates under the knee and prevents the teeth from assuming their proper position for carding. The clothing retains the greater part of the impurities, such as straw, burs, etc., which are removed by an extra cylinder, 5 to 6 inches in diameter and covered with steel plates which project about 1/2 an inch. The speed of the licker-in should naturally be less than that of the cylinder, which removes the wool from it.

Strippers: These rollers are at least 4 inches in diameter and make 80 to 90 turns a minute. They remove the wool which is held by the clothing of the workers. For this reason they are run at a higher speed than the adjacent rollers from which they take the wool. The wire of the clothing is

set in an opposite direction to that of the workers. The proper setting of these small rollers is as important for good carding as is the adjustment of the doffer and fancy. It is necessary that the strippers be set sufficiently close to the workers to effect a regular removal of the fiber. There should be the same distance between the stripper and the cylinder in order that the latter may take up all of the wool.

Workers: The workers usually run 6 1/2 revolutions per minute, the diameter being about 7 inches. They hold the wool taken from the main cylinder, mix the fibers and place them in a parallel position. A card should have at least 7 workers in order that

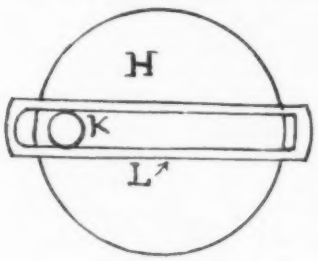



FIG. 3.

the wool may be properly prepared for combing. The first worker should be provided with clothing that is coarser than that on the workers near the fancy. The wool should be stripped regularly from the workers by the strippers, and if a worker appears to carry less wool than that carried by other workers, the cause is generally to be found in the worker having been set farther from the cylinder or in its clothing having become damaged. When working wool that is easily carded part of the workers are often put out of action in order to prevent a breaking of the fiber by overcarding. If on the other hand, the wool is not easily carded the workers may be run in the opposite direction, resulting in a more energetic action of the clothing of the wool.

Carding Breast: The cylinder of the breast is usually provided with two or three workers and the same number of cylinders. This cylinder makes from 45 to 50 turns per minute and is 24 inches in diameter. The main cylinder of the card is run at a speed of 100 to 120 turns per minute, the diameter varying from 45 to 48 inches. The clothing of the main cylinder should be flexible, properly bent and high enough to retain the wool.

Workers: Diameter, 8 to 9 inches; speed, 6 to 9 turns per minute.

Strippers: Diameter, 3 to 4 inches; speed, 350 turns per minute.

Fancy: The diameter varies from 12 to 14 inches, the speed 550 to 600 turns per minute. The clothing is about one inch long and if not kept in good order the result will be an irregular and twitty yarn and an increased quantity of fly. The surface speed of the fancy should be about 20 per cent. more than the surface speed of the cylinder. To test the working of the fancy the cards should be run for about 5 minutes and then stopped and the fancy removed in order to determine whether the wool is being raised freely from the cylinder. Coarse wools require less working by the fancy than do fine wools. If the wire of the cylinder clothing is not bent sufficiently, the work of the fancy is made more difficult and as a result will have to be set closer to the cylinder or run at a higher speed.

| PARTS | Diameter in ins. | Circumference in feet | Revolutions per min. | Surface Speed ft. per in. |
|---|---|---|---|---|
| Lickerin | 13½ | 3.53 | 10 | 36.49 |
| Bur guards | 5 | 1.30 | 861 | 1127.44 |
| Workers | 9½ | 2.48 | 12 | 32.08 |
| Breast cylinder | 27 | 7.06 | 38 | 273.69 |
| 1. Cleaner | 5 | 1.30 | 72 | 94.74 |
| 2. Cleaner | 5 | 1.30 | 61 | 80.71 |
| Workers | 9 | 2.35 | 4 | |
| Tumbler | 6½ | 1.70 | 267 | |
| Main cylinder | 53 | 13.87 | 104 | |
| Cleaners | 5 | 1.30 | 336 | |
| Fancy | 13 | 3.40 | 605 | |
| Doffer | 24 | 6.28 | 5 | |
| Comb | — | —— | 485 | |
| Harmel roller | 10½ | 2.74 | 10 | |
| Tumbler on Finisher | 6½ | 1.70 | 160 | |
| Finisher cylinder | 53 | 13.87 | 104 | |
| Finisher fancy | 13 | 3.40 | 605 | |
| Finisher doffer | 24 | 6.31 | 6 | |
| Finisher workers | 9 | 2.35 | 5 | |
| Finisher comb. | — | | 435 | |

Doffer: This cylinder is 24 inches in diameter and makes 7 to 10 turns a minute. The surface speed is about 1/16 of that of the cylinder and produces a combing action on the wool. The doffer completes the action of the card and received all of the wool raised by the fancy. It does its work more

easily if the clothing is well bent and kept sharp. The cylinders, workers, doffers and fancy of the finisher card are of the same diameter as those on the breakers and run at practically the same speed. The comb is run at a speed of about 650 strokes per minute in order to strip the wool from the doffer thoroughly.

Winding Attachment: Fig. 1 shows a plan, and Fig. 2 a section of the mechanism for winding the carded sliver as it comes from the card. The web coming from the finisher doffer, P F, is condensed into a sliver by the tube, E. It then passes between the two cylinders, R and $R^1$, the first being corrugated and driven from the doffer. The top roller, R, is smooth and driven by friction against the bottom roller. The sliver then passes through a second tube, $E^1$, and is wound on the spool, B, which is driven by contact with the two rollers, C and $C^1$, which revolve in the same direction. These rollers, covered with leather, slide back and forth on the shafts, A and $A^1$, in order to wind the sliver in spiral form. This vibrating motion is obtained by means of the plate, H, Figs. 1, 2 and 3, in which is fastened a pin, K, that operates in the slide, L. The plate, H, is driven by beveled gears as shown. The spool, B, is about 12 inches long.

Production: The production depends on the quality and condition of the wool, the perfection of the machine and the speed at which it is run. It is less on fine wools because the coarse wools can be carded much more rapidly on account of their open condition. The production is a function of the surface speed, but it can be increased without increasing the speed of the machine by increasing the thickness or weight of the wool spread on the feed table. There is a limit to such increase which cannot be passed without injuring the work. An average production is 18 to 20 pounds per hour when working French wool, and 15 to 16 pounds on burry Australian or South American. This estimate is based on a card 48 inches wide, the main cylinder running 120 revolutions per minute, developing a surface speed of 1,427 feet per minute. When working coarse wool, the production can be increased to 24 pounds per hour. The waste in carding varies from 3 to 5 per cent. and is equal to about 2 per cent. of the value of the wool. The speed of the cards should not be too high, otherwise the staple will be shortened and the percentage of noil increased. To prevent the percentage of noil from becoming too great the surface speed of the cylinder should be kept within the limits of 1,300 to 1,500 feet per minute.

Automatic Feed: This attachment is indispensable for producing a uniform sliver. It is evident that the more regular the feed the more uniform will be the sliver in the subsequent operations.

## UNIFORM COTTON YARN.

*BY OMEGA.*

Why can English spinners make yarn freer from irregularities than we can? "We have as good machinery as they. In some of our mills we have machinery of the same make!"

My reply to this question is that while we can make as good yarn in the United States as anywhere else, we do not, or cannot, get the help to give that same attention to the details of the work that they do in England. It is my intention in this short paper to give a summary of some of the details that tend to make a yarn free from irregularities. At the same time I will give some of the methods that are in vogue at the present time in England.

Beginning with the cotton in the bale. It is most essential that we get a thorough blending. When opening cotton, have as many bales around the machine as possible and take a layer from each bale in rotation. In the picker rooms try to keep the weight of the cotton on the back of the pickers as nearly uniform as possible. Do not have all the laps running out at once. Owing to the fact that the lattice is driven by frictional contact, a light or heavy load is bound to affect it. It is not a good plan to have all the piecings go into one finished lap. Have every finished lap weighed. Use scales that will show the weight at once and do not let any laps go forward to the cards that vary more than 8 ounces from the standard weight for the full lap.

There are no doublings at the card, so I will ignore that process for the present and get to the drawing, which is the most important process in the mill for the making of a level yarn. In the Oldham district of England the drawing frame tender is the best paid of the operatives in the card room.

It is the general practice in mills (that are not supplied with springs in the cans to keep the sliver as near the top as possible) to equalize the tension at the back of the frame by splitting the cans as follows: For the six ends at the back of the frame that make the finished end, one can will be full, one 5/6 full, one 2/3 full, one 1/2 full, one 1/3 full and one 1/6 full. As the last one empties and is replaced with a full can, the same relative quantities are maintained in the cans, the tenter very seldom allowing the machine to stop during the process of putting the full cans in, usually being able to piece the end of the full can to the end of the one almost empty. The same system is applied at every repetition of the drawing process.

We will now examine the slubber bobbin in the intermediate creel. The two top rows will be full bobbins and the two bottom rows half bobbins. As two ends are made into one a full bobbing and half bobbin are run together and the tension is kept as uniform as possible. The front top row should run with the middle row, and the back top row with the bottom row. The same process is applied at the speeder, jack frame, mule or ring frame. It has been found that there is a difference in the tension between the front and back row of spindles of the fly frame. At some mills it is the practice so to systematize the creeling so that a bobbin from each of the two rows will be run together in the subsequent process in preference to mixing them and bringing bobbins from two back rows or two front rows together.

I now come to the cleaning and oiling of the frames, the neglect of which causes so much foreign matter in the yarn. All parts of the machines should be oiled and cleaned regularly. By cleaning, I mean the wiping of the frames with a cleaning cloth or waste, and not "blowing off," as is so common in this country. "Blowing off" is responsible for one-half of the slubs that get into the yarn. All frames should be scoured frequently and the settings examined.

Pickers: Oil at least twice a day. Wipe or brush with a small soft bristle hand brush twice per day. All working parts, such as the evening motion, screens and calender rolls should be taken apart once every six weeks, cleaned and lubricated with black lead or French chalk.

Cards: The principal bearings in the cards should be oiled twice a day. Minor bearings are oiled once a day. Slow motions are oiled once a week. Cylinder doffer and taker in pedestals are refilled with a fibrous lubricant every Saturday. The cards are brushed down twice a day. Taker-in fly is gathered three times a week, on Monday, Wednesday and Friday. Front fly is gathered every Tuesday morning. Cards are stripped four times a day, at 7 a. m., 10 a. m., 1,30 p. m., and 4 p. m. Each stripper is required to do a certain amount of sweeping on Friday morning. Flats are brushed out on Friday morning. All belts are carded and clearers stripped at the end of the week. Flat brushes are stripped every week end. Each set of strippers take four feed rollers out every week, clean them and put them back again.

Care must be taken not to have the cards stopped longer than is necessary. Each stripper brushes his cards down before the tenders commence to clean them, and is held responsible for the thorough cleaning of the cards. All cards are ground lightly once a week. Card tenders wipe the card fronts every two hours. Piecings are made with short overlaps and soft twist. The mote knives, feed plate, flats and doffer must be reset at short periods and by a responsible person, preferably the second hand, as this is important work requiring a skilled hand.

Drawing Frames: The tenders wipe down the roller beam with clean waste every two hours. The front of the box around the trumpet mouth is wiped clean every half

hour. The bottom of the coilers, inside and out, are cleaned once a day. The tenders must make good piecings and clean their top flats and underclearers every half hour. Sweeping is done at 8.30, 10.30 and 12.30 a. m., 3.30 and 5.20 p. m.

Oiling: The top roller saddles and all quick running parts are oiled every morning between 6 and 7 o'clock; all other parts, twice a week, on Monday and Thursday. The frame ends, top flats and fronts are kept bright and clean. When cleaning roller beams the cans must be drawn away from the spoon levers.

Speeders: The principal bearings at the gearing end of the frame are oiled twice a day. Other bearings once a day. All collars are oiled at every doffing every morning except on Saturday. All spindle feet are oiled every month, one frame every two weeks. The front iron rollers are oiled every morning except on Saturday. The back and middle rollers are oiled once a week. The boss rollers are cleaned and oiled every two weeks, one frame each week. The spindle tops are cleaned and oiled every month. The flyer tops are cleaned at the same time. Flyers are picked clean at every doff on slubbers, at half bobbin and full bobbin on intermediates and speeders.

When picking flyers at half bobbin the frame is stopped when the presser is at the top of the lift, so that any dirt getting on the bobbin can be seen and picked off. Good piecings must be made, with short overlap and soft twist. The fingers must not be wet when piecing. Bad ends, single or double, must not pass into the work. Under clearers and top flats must be picked every hour. Sweep the floor every two hours.

Fly must not be allowed to collect on the creels, creel rods, gearing covers, back boards, roller beams and hooks, which must be wiped down at intervals. All frames are cleaned underneath at least twice a week. A few bobbin and spindle gears should be cleaned each week. All frame ends and flats are kept clean and bright. All bottom steel rolls in speeders and drawing frames should be taken out three times a year, the roller bearings cleaned and fresh grease put in at the same time thoroughly cleaning the rollers.

Ring Frame and Mules: The same routine is followed wherever applicable, with special emphasis upon, Don't blow off.

The foregoing directions can be followed if we have intelligent help. The class of help we are now getting into the cotton mills in the United States is not as good as it used to be, but with perseverance on the overseer's part the time may yet come when we shall be able to have better trained help in our mills.

## WOOL CLASSING IN AUSTRALIA.

*BY FIRE-BRAND.*

From the Stock and Station Journal, Sydney.

In all countries which produce large quantities of raw material there are two important factors to be considered in the attainment of profitable realization on the world's markets. First comes the quality and character of the article produced, then its preparation in such a way as will render it most acceptable to those desiring to purchase it for their requirements in manufacturing.

Seeing that this country (Australia) produces the bulk of the world's wool supply and in view of the fact that information regarding our staple product is always being asked for, I think it may be acceptable to reprint for the benefit of the readers of the Stock Journal a series of articles dealing with the question of wool-classing.

There is perhaps no other material in which the matter of "get up" plays so important a part as in the case of wool. We can admit that for general excellence our wool stands unrivalled, but in regard to the classing of it there is a perceptible lack of the old-time carefulness and attention. There are several contributing causes to this unsatisfactory feature, which will be mentioned in due course; meanwhile it is interesting to review the business of wool-classing from its early days to the present time.

The whole of our first clips was, of course, shipped direct to England—then the wool market of the world—where it soon achieved

a reputation for the possession of certain qualities now well known. Soon some enterprising persons came to the conclusion that there was good money to be made by securing wool at Sydney, and shipping it home on their own account, so out they came and laid the foundation of what is today the premier wool market of the world.

As our flocks increased and the clip became heavier, it became evident to those early wool merchants that there was much room for improvement in the packing and preparation of the clip, and it was common for them to employ wool sorters to grade or class their wools before shipment, suitably to the requirements of the various branches of manufacture. The men they employed to do this work were generally experienced Yorkshire wool sorters who, shrewd and hard-headed as is typical of the men from that country, soon saw what a good opportunity lay before them inland at the country shearing sheds, and they were not long in getting to business there.

These men trained in the woolen mills in the old country formed what might be termed the "old brigade" of wool classers, and good work they did too in establishing a system of grading and classing our wool that went far towards keeping up its reputation as the best in the world. They had numerous pupils and many a man who is doing well as a wool classer today owes something to the teaching he received from a member of the old Yorkshire wool classing fraternity.

As a profession wool classing was more remunerative in the old days than is now the case, and many of those who followed it up were able to apply the profits they made to more extensive operations, such as the establishment and running of wool scouring works or buying wool for the home mills, while others went right out of the trade and entered other walks of life entirely. We next come to a period when, seeing that there were apparently good openings for young men with a knowledge of wool, the Government added a wool class to other departments of trade teaching at the Technical College. For some reason or other the decadence of wool classing seems to have begun from that time, or shortly afterwards. It would not be fair to attribute the cause entirely to the establishment of that class. Rather should it be said that while, for a time, the Technical College did a very useful work in this connection, it and its methods did not keep up to date nor pace with the industry which this special class was intended to benefit.

The educational aspect of the wool business presents such a wide field of usefulness and the demand for instruction therein is so widespread today that a little wholesome criticism of the methods used to supply it may give the department responsible some small incentive to improve matters in this respect. The members of the teaching staff should use their utmost endeavors to cultivate the good will and assistance of those in the trade who would be only too glad to give any information or practical hints that would be likely to improve in any way the handling of wools which they are here to buy. The policy of the wool authorities at the Technical College should be to court criticism, not to fear it. As matters are at present, no one outside the Department of Public Instruction takes any interest in the sheep and wool class. Surely an undesirable state of things if progress is desired.

Harking back to old times, when the excellence of our wool classing was a noted feature, we must admit that the conditions then and now are very different. Formerly, it was entirely a matter of grading clips from large flocks of merino sheep, all of which on any given station were of one strain of blood and breeding from the first off the shears to the "cobbler." Therefore, apart from the differences in length, condition and fault of staple, it was a fairly easy matter to class a clip of wool into good even lines, with well-marked distinctions between the sorts. Added to this, manufacturers were not so particular, and buying was done on a broader, though not so scientific, a basis as today. In regard to actual classing these remarks will apply with equal force today so far as our established flocks of pure merino type and standard are concerned.

The advent of closer settlement with its smaller flocks and consequent attention to breeding for mutton as well as fleeces has had the inevitable effect upon our wool clip, which now needs far more care and knowledge in its preparation for market than used to be the case. This State in her various districts is suitable for any known breed of sheep, and these are scattered all over New South Wales today; nearly all the English breeds, which being crossed with the merino, are producing wools of innumerable different styles and qualities. The variations, which can exist and be discerned on any two lots of wool bred from different English varieties of sheep on to the merino, are surprising, and are very strongly marked from a manufacturing standpoint. As that is the base from which we arrive at the value of produce in the raw state, a closer acquaintance with the users of the wool fiber would be at least desirable. If woolgrowers applied the intelligence brought to bear upon the actual production of the staple along the lines that lead to its return to them as cloth, much of the business necessary between production and disposal would be rendered both easy and pleasurable.

There is probably no other material in the world which possesses such a wide range of qualities and descriptions as wool, and it would be a sheer impossibility to grade, or standardize our wool slip as is done with the wheat harvest. The whole business is unique and there is no use for signs denoting that wool is fine, medium, or fairly fine. Nothing is more susceptible to the influence of climate and country when growing. If the wools grown in New South Wales this season were all mixed together in one lot, it would present an indescribable piebald appearance owing to this very fact.

This would still be the case if all the sheep which produced it were of one merino strain. If it were offered for sale in such shape, instead of eliciting bids, nothing but howls of derision would be heard in the sale room. This illustration is, of course, an exaggerated one, but is given to show that variations exist in wool to such an extent that a wholesale mixture of our clips as one line would render it practically valueless.

This fact is recognized by the world's wool manufacturers, and it is probably for this reason that they find it necessary to establish their representatives, more or less permanently at the seat of production.

There are many factors regarding the growth and production of wool, a knowledge of which is of the highest value to consumers, and can only be acquired in the country where the wool is grown. The majority of buyers operating on the Sydney market know the characteristics of wool from every district in the State, and generally have a pretty shrewd idea regarding the conditions which governed the growing of the clip from shearing to shearing.

If wool was just wool and a pound of it from Bourke equal to sixteen ounces from Armidale, the foregoing remarks would not apply, and instead of the army of wool buyers of all nationalities which visits us regularly every season, the whole business could be done by cable or through agents with no particular knowledge regarding the commodity in which they dealt. Unless a man has some technical knowledge of the fiber and can tell its quality, what it will yield after scouring, and its cost when combed, he is utterly at a loss when it comes to any practical transaction of wool business. Hence it is that woolmen seem to be, and, as a matter of fact, are a close corporation of experts, each with a special knowledge regarding the wools he is seeking.

There is no reason why the woolgrower should not make himself acquainted in a general way with the sections of the trade for which his particular style of wool is suitable, and the reasons which govern the price per pound he will receive for it. Unfortunately, however, the majority of growers look upon buyers as sworn enemies to themselves and the industry; always trying to get the best of the deal in the matter of price. The reverse is the case, for wool buyers are always willing to help in the disposal of wool well graded, which fact is evidenced by their vociferations in the saleroom when a particularly well "got-up" clip

comes under the hammer, while their bidding is fitful and uninterested in the case of wools showing slovenliness or want of care in breeding or preparation for market.

This is where the small sheep farmer is the greatest offender, and without stopping to consider his own responsibility in the matter, at once accuses his broker and buyer of complicity in an attempt to deprive him of the full value of his clip. This is not so, however, but many growers have an idea that all wool is the same, and that buyers can take and use all sorts indiscriminately. The sooner the farmer learns that different wools have different uses, and that all manufacturers cannot handle the same descriptions, the better. Until this lesson has been learned, albeit only in a general way, we cannot expect a great improvement in the get-up of the smaller clips. Just now the small consignments are much in evidence, and it would well repay any grower who is offering his wool in Sydney to visit his broker's stores and prevail on the wool expert who attends to the cataloguing, valuation and disposal of the wools to give him some information relative to the future handling of his clip for market.

The manufacturing side of the wool industry does not, as many suppose, deal with the staple as a whole upon a common and general process, but is divided into two main parts or sections, viz., worsted and carded woolen manufacture, both entirely separate as regards the class of wools used, and the construction of yarn and cloth produced.

The terms used in describing the raw material suitable to each branch of the raw trade, are familiar enough, and will be recognized at once by all Australian woolgrowers in the words combing and clothing. When seen on the wool bales a decade or so past, these words bore greater significance to a buyer than is the case today. No two words descriptive of wool have been so misapplied, and a layman would hardly credit the fact that such misapplication has often militated against the successful realization of a line of wool.

Formerly the words combing and clothing were distinctive terms, which marked the division between long and short wools, and when marked upon the bales under the supervision of an expert classer who thoroughly understood the meaning which each word would convey to the buyers, carried their due significance. Wool men who are thoroughly conversant with the methods of the trade and its peculiarities, know very well that either of these words wrongly placed upon a wool-pack in description of its contents will prevent many a buyer making a bid for the lot. The reason for this is that, however suitable a wool may be intrinsically as a combing description, he dare not ship it to his principals under the designation of clothing, and vice versa.

It might be argued that it would be very simple to rebrand the bales under the true description, but the wool trade has a rooted aversion to altered quality marks, and is always suspicious of any wools, which show signs of an alteration having been made in respect of the original brand or descriptions. So strong a thing is custom that a wool buyer would rather leave such misdescribed wools severely alone than have his purchases questioned at the other end of the world, and perhaps lay up a host of troubles in the shape of claims for settlement arising out of such misdescriptions.

A common error made by wool growers is that of thinking that the best of their wool must necessarily be called combing, and that clothing may be used to describe anything that does not come up to the standard. I have often noticed some of the finest Mudgee wools branded combing that would assuredly be used in the manufacture of the finest woolen fabrics, in the production of which a combing machine is not at all concerned. Another common mistake is that of branding a wool clothing because it is tender, or has a break in the staple. This does not necesarily mean that the wool is not fit to be combed, and is to that extent misleading. In any case a woolen manufacturer likes a sound stapled wool, equally as well as does his fellow in the worsted branch of the trade.

Sometimes it appears as if woolgrowers think that their clips will be bought in accordance with whatever quality mark they choose to put upon the outside of their bales, and locks are often called pieces and second pieces marked first; while the staid old fathers of the flock are sometimes reduced from their high estate and placed with the common or garden variety of wethers. This may be all very well as a matter of orthography, but the science of spelling does not enter very largely into the wool business, and the old saying that, "A rose by any other name would smell as sweet," does not apply at all.

(To be continued.)

## ENGINE SPEED REGULATION IN TEXTILE MILLS.

Reports of Tests made by the Chief Engineer of the Vulcan Boiler and General Insurance Co., Ltd., (Manchester, Eng.) and the Consulting Staff.

The importance of the regularity of speed in textile mills has been brought into considerable prominence by advocates of electrical driving, and we therefore consider that the following particulars of tests which we have made upon the governing of a triple expansion engine at the Orb Mills, Oldham, will be of considerable interest to our readers. These tests were made on the 15th of December, 1909, and the 27th of April, and 10th of August, 1910, with the special object of ascertaining the regularity of speed

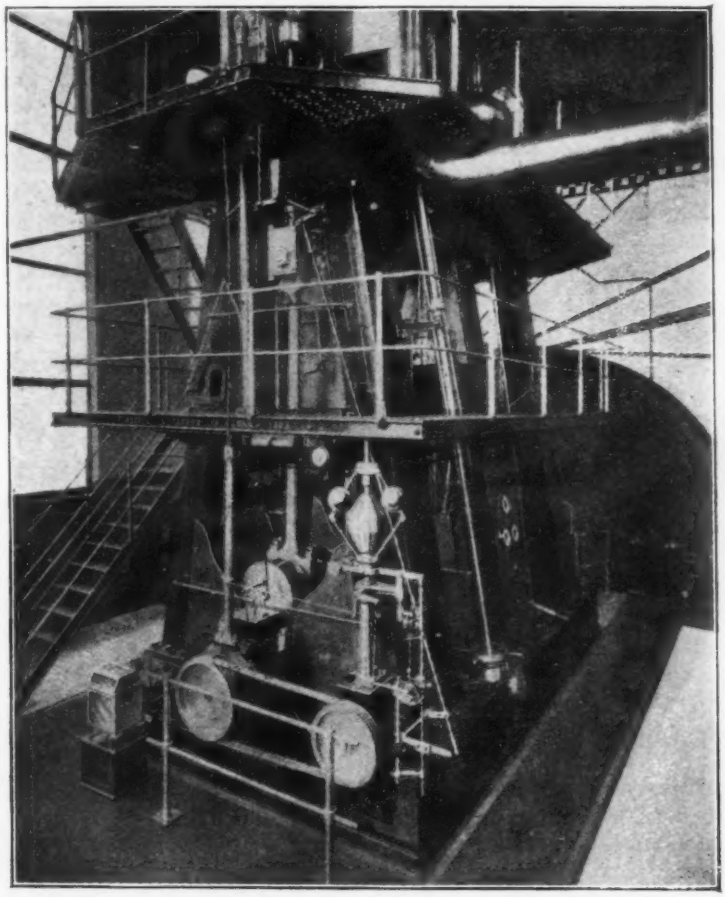


FIG. 1. VIEW OF A TRIPLE EXPANSION ENGINE AT THE ORB MILLS, OLDHAM.

which can be obtained with a three-crank engine of modern design; engine controlled by a center-weight governor of the type usually supplied by high-class engine makers, and the improvement which can be secured by adopting Messrs. Lumbs' special system of governing. The principal results of these tests show that the total variation in speed,

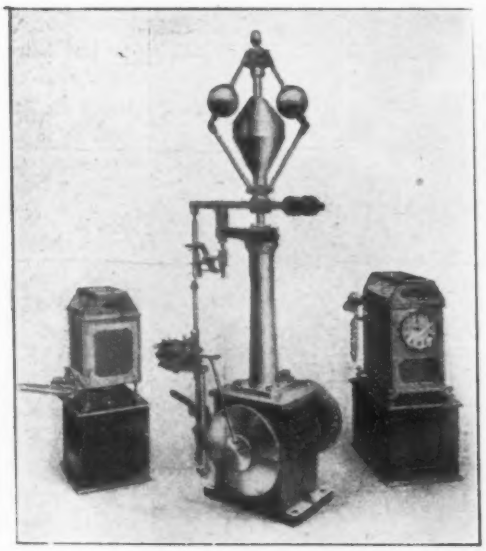


FIG. 2. LUMBS' SYSTEM OF GOVERNING.

inclusive of momentary fluctuations, under normal working conditions is equal to 3.4 per cent., and that with the apparatus as supplied by Messrs. Lumb, the total variation can be reduced to one-half of this amount, and in consequence of this improvement in regularity of turning, considerable increase in production and quality of yarn is obtainable.

The engine, a general view of which is shown at Fig. 1, were of the triple-expansion inverted type, supplied with steam at a pressure of 175 pounds per square inch. There were three cylinders, of 20 inch, 32 inch and 52 inch diameter respectively, and the pistons had a stroke of 4 feet. The crankshaft was of the three-throw type, one crank to each cylinder, and the flywheel is fitted on an extension of the crankshaft. The angle between the crank was 120°, with the low-pressure crank placed nearest the flywheel and arranged as leading crank. The engine had been designed for driving a load of about 1,000 i. h. p., but the mill was not completely filled with machinery, and at the time the tests were made the load varied between 650 i. h. p. and 760 i. h. p.

An exact record of the revolutions made by the engine for intervals of exactly ten minutes was made for a period of about three hours on each day, and during the whole of this period tachographic records of the speed variation were taken by a Moules tachograph, driven from the crankshaft of the engine. The engine was also indicated at frequent intervals, in order to ascertain the load, and records were made of the machinery which was being driven by the engine on different days in order that these should be available for comparison.

### TESTS OF 15TH DECEMBER, 1909.

This test was made with the engine running under ordinary conditions, and with the governor supplied by the makers, and in accordance with their adjustments. The principal results of this day's test are shown by copies of tachographic records Nos. 1 and 2, and also by the first column of tables, 1, 2 and 3. For the first hour of the test, that is, from 1.56 p. m. to 2.56 p. m., the steam pressure was under the normal control of the stokers, and varied between limits of 173 pounds and 182 pounds per square inch. Arrangements were also made for the steam pressure to be reduced for a short period. This was carried out, and the steam pressure was reduced to 140 pounds, under which condition the engine speed was reduced to such an extent that complaints as to difficulties in spinning were made by the overlookers, and in consequence instructions were given for the pressure to be brought up again to the normal figure of 177 pounds. This was attained at 3.36 p. m., and afterwards until the end of the test full pressure was maintained. The tachographic records have been carefully analyzed throughout, and Figs. 3 and 4 show copies of records

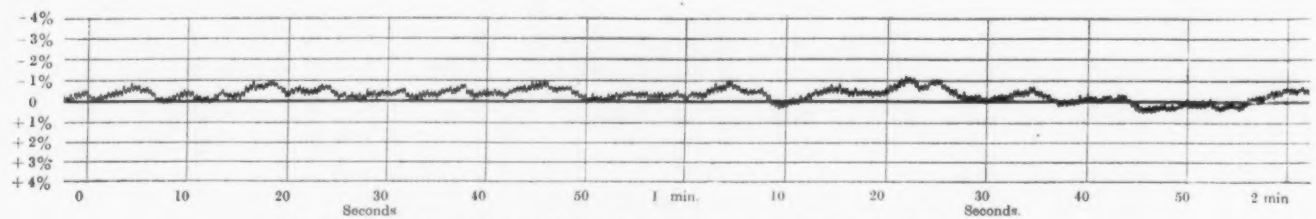



FIG. 3.—Tachograph record for 2 minutes' run, selected to show average conditions with ordinary governing.

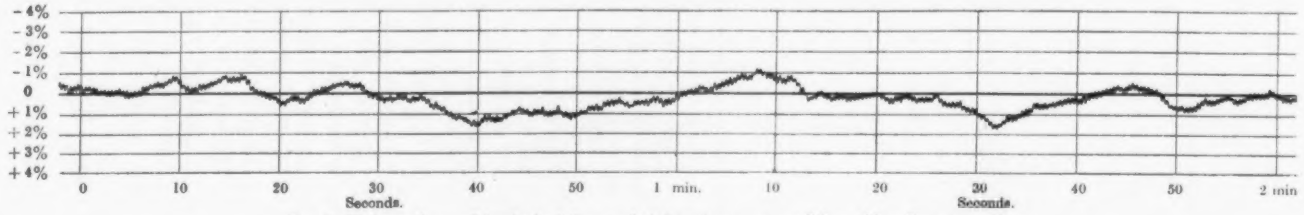



FIG. 4.—Tachograph record for 2 minutes' run, selected to show worst conditions with ordinary governing.

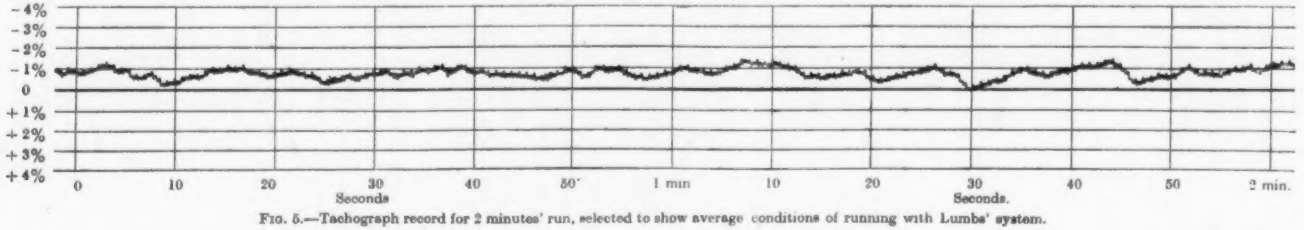



FIG. 5.—Tachograph record for 2 minutes' run, selected to show average conditions of running with Lumbs' system.

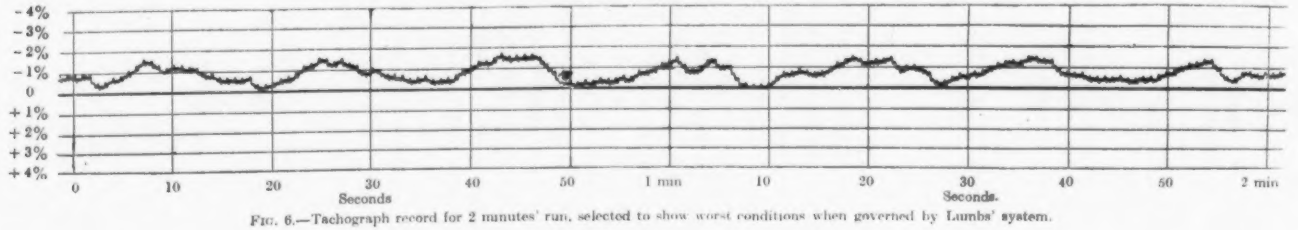



FIG. 6.—Tachograph record for 2 minutes' run, selected to show worst conditions when governed by Lumbs' system.

which are a fair representation of the average and the worst conditions.

TESTS OF 27TH APRIL AND 10TH AUGUST, 1910.

These tests were made after the engine had been fitted with Messrs. Lumbs' system, comprising new governor, regulating gear and special connections to the trip motion, as illustrated by Fig. 2; the original governor and connections were entirely removed. The tests were carried out, as far as possible, under the same conditions as were in existence for the test of December, 1909, excepting that owing to the new governing system it was found that the speed of the engine was not visibly affected by reduction of steam pressure, and the reduction of pressure was carried down to 126 pounds, without any complaints by the workers in the mill. Figs. 5 and 6 show copies of tachographic records, which are selected for comparison with those shown by Figs. 3 and 4.

The revolutions of the engine were separately recorded by observations at 10 minutes' intervals of a reciprocating counter at each test. The results of these observations are shown at Table 1.

The above table shows the average speed at intervals of 10 minutes each through each test, and that the total variation was controlled by the governor supplied by the makers, and was reduced to .15 revolutions when controlled by Lumb system. These results are for the total period of the test, and include that part of the test which was taken with steam pressure specially reduced. It is the custom in textile mills to reduce the pressure immediately before each stopping time, to avoid abnormal increase of pressure after the engines stop, and loss of steam at the safety valves. The conditions in which reduced pressure is included is therefore quite in accordance with ordinary practice. We have, however, separately calculated out the speed and variations for such period of the test as was carried out under full steam pressure, and the results of these calculations are shown in Table 2.

TABLE I.

Average Speed of Engine for Intervals of 10 Minutes, as Measured by Revolution Counter.

| Dates of Test. | 15th Dec., 1909 | 27th April, 1910 |
|---|---|---|
| Conditions of Governing | Speed Regulated by Governor Supplied and Fixed by Engine Makers. | Speed Regulated by Messrs. Lumbs' Governor and Regulating System. |
| Time 1.56 to 2.06 | 76.1 | 76.0 |
| 2.06 to 2.16 | 75.2 | 76.0 |
| 2.16 to 2.26 | 75.9 | 76.0 |
| 2.26 to 2.36 | 76.1 | 76.05 |
| 2.36 to 2.46 | 76.4 | 76.05 |
| 2.46 to 2.56 | 76.5 | 76.05 |
| 2.56 to 3.06 | 76.1 | 76.05 |
| 3.06 to 3.16 | 75.1 | 76.0 |
| 3.16 to 3.26 | 75.4 | 76.0 |
| 3.26 to 3.36 | 75.8 | 75.9 |
| 3.36 to 3.46 | 76.6 | 76.0 |
| 3.46 to 3.56 | 76.6 | 76.05 |
| 3.56 to 4.06 | 76.9 | 75.9 |
| 4.06 to 4.16 | 76.5 | 76.0 |
| 4.16 to 4.26 | 77.0 | 76.0 |
| 4.26 to 4.36 | 76.6 | 76.0 |
| Average for Period 1.56 to 4.36 | 76.22 | 76.00 |

TABLE II.

Variation in Mean Speed of Engine Over Intervals of 10 Minutes, Under Ordinary Conditions of Working and With Regular Steam Pressure.

| | With Maker's Governor | With Lumb System |
|---|---|---|
| Average Speed | 76.4 revs | 76.02 revs. |
| Variation in Mean Speed | 77 to 75.8 revs | 76.05 to 76.0 revs. |
| Equivalent Variation | 1.2 revs. | .05 revs. |
| Equivalent Percentage | 1.6 per cent | .07 per cent. |

Variation in Mean Speed of Engine Over Intervals of 10 Minutes, Inclusive of Period With Steam Pressure Reduced as Stated in Text.

| | With Maker's Governor | With Lumb System |
|---|---|---|
| Average Speed | 76.2 revs. | 76.00 revs. |
| Variation in main speed | 77 to 77.5 revs. | 76.05 to 75.9 revs. |
| Equivalent variation | 1.9 revs. | .15 revs. |
| Equivalent Percentage | 2.5 per cent. | .21 per cent. |

(To be continued.)

## ENGLISH NOTES.

*(By Our Special Correspondent.)*

Cotton spinners are resentful of any talk about a boom in yarns and they point to a decline in margins which seems to indicate that production is overtaking consumption. A spinner, president of the Oldham Chamber of Commerce, forecasts for the weaving mills the best year since 1906 and adds that spinners will make fewer losses. The latter assurance is covered by the orders on spinners' books. Looking backwards, Mr. Newton found one redeeming feature in last year's cotton market; prices were high, but they were consistently high. There were not those violent fluctuations which make a bad state worse.

The end of March is the recognized time for maturing opinions on the wool market and in early February conditions are uncertain. The fact that affairs are so much worse in France, Germany and America then they are England is regarded as dangerous. In the worsted trade spinners, especially of merino, can afford to be firm, but looms are not too well engaged. The carded woolen branch is thriving best. The domestic trade in fabrics has opened well, but the benefit is chiefly felt by jobbers. The export markets are supplying less new business and in view of the large shipments they have received this fact is not surprising.

* * *

Contrast of last year's export statistics with those of 1900 shows an astonishing progress in sales of British carded woolens. The matter is stated concisely in the following table:

| | Million Yards: | |
|---|---|---|
| Worsteds: | | |
| All wool and mixed stuffs, linings, dress goods ..... | 1900<br>102.1 | 1910<br>95.3 |
| Woolens: | | |
| All wool and mixed | 50.5 | 95.3 |

The figures as to woolens exclude blankets, flannels and carpets and include 57 million yards of mixed goods, largely heavy woolens with cotton warps. When all has been said that can be said against these totals a great gain to woolens remain. The two branches of the trade are coming closer together. The carded woolen business consumes more and more worsted warps and the worsted trade more and more woolen filling, but on general probabilities the woolen with a worsted warp is more likely to be classed by the declarer as a woolen than as a worsted and the worsted with some filling is likely to be called a worsted still. As for the stuffs and dress goods, they include fabrics with so little worsted that they might almost be ranked with cottons and many have gone over into the cotton class altogether. Woolen warp tweed goods have increased their sales, but cotton warp heavy serge fabrics have probably a greater influence upon the total. Shipments of woolens to Argentina, Uruguay, Brazil and Chile, amounting now to 12 1/2 million yards, have trebled in the eleven years and so, approximately, have shipments to China and British India. To South Africa, Australasia, Canada and Turkey shipments of woolens have in each case doubled themselves in the period. An increase of a million yards (making 2.7 millions) of woolens occurs in shipments to the United States and these are in relatively expensive goods. Meantime production for the domestic market has assuredly not been decreasing and now that worsted is dear the taste for woolens is giving Bradford people some temporary concern.

* * *

American dry goods men visiting this country have exhibited interest in cottons figured with artificial silk of the general type shown in these columns a month ago. As was said at that time, artificial silk begins to trespass on the domain of mohair and a pattern now sent, Fig. 1, shows in what manner. It is in effect a striped, light weight, cotton warp sicilian with a high luster, but without the usual filling of mohair. The filling is white artificial silk of a luster and fineness which cannot be matched by any mohair and its cost is roughly half that of the article it imitates. Goods of the sort can be bought from Bradford makers at 29 cents in 40 inches and they are selling freely for export. The filling in the sample sent is noticeably inflammable, and in durability it

cannot compare with the fine fleece of the goat, but it serves some purposes and is a very salable article in protected countries where the duties are on a weight basis.

* * *

The death of three Bacup weavers from phthisis—under conditions mentioned a month ago—has loosed a flood of condemnation of the nasty practice of shuttle-kissing. Consumption is not the only disease that has been transmitted by shuttles. Eight years ago in the same town mild smallpox was almost certainly passed from weaver to weaver in the same way. Nor is it only deleterious germs which are introduced into the system by sucking the filling through the eye of the shuttle. The weaver runs a good chance of getting zinc or other metallic salts from the sizes used. Search is being made for a disinfectant with which shuttles might be wiped instead of being immersed.

David Shackleton, formerly a weavers' union official, now Labor Advisor for the Home Office, has written that the only real and satisfactory remedy is the introduction of self-threading or mechanically threaded shuttles. The chairman of the Accrington weavers has called on the members to give mechanical threaders a fair trial. A Bacup manufacturer has promised manufacturers' support to any feasible scheme for avoiding contagion. Practical men at large have emphasized the fact that a self-threader shuttle to be effective must act as quickly as the hand-to-mouth motion.

The Medical Officer for Bacup, with grim humor, has reported to the Government Department that "the safest person to follow in shuttle-kissing is a man who chews tobacco. The very filthiness of the shuttle makes the weaver who follows him more careful and particular." The inventive shuttle-maker has an exceptional chance to introduce a novelty.

* * *

A pattern-agent who offered to supply Kaye & Stewart of Huddersfield with all the latest designs in suitings was the efficient cause of the great outcry against pattern pirates. He represented a Vienna house and his price for a full set was $90. Kaye & Stewart paid the money and saw that a large number of the styles were their own and were only a few weeks old. They communicated with Scotland and soon had the tweeds identified and from that point to discovering the particular merchant who had received these styles was only a short step. The manufacturers used coercion and secured the discharge of the traveler who had sold the patterns. It is clear, however, that pattern copying is not to be easily put down. A number of small foreign buyers arrive twice a year in this country and spend a whole or a half day in selecting perhaps $100 to $200 worth of cloth from the patterns of one manufacturer. Manifestly this is not in itself a very profitable use of time and the patterns chosen are made the basis for orders to Continental manufacturers. The patterns are copied, but they are not always well copied. Indeed the inferiority of the copier was what particularly struck a Huddersfield designer who lately had occasion to

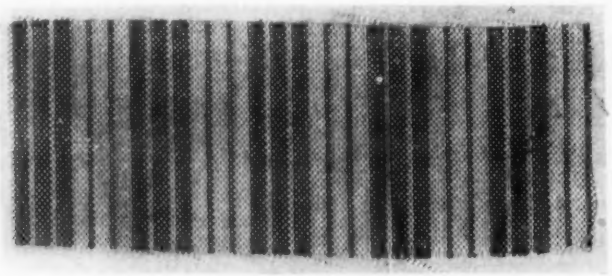


FIG. 1. A FABRIC COMPOSED OF ARTIFICIAL SILK AND MOHAIR.

go closely over the ranges of four German mills, in which he could find not one new or original idea. The principal complainants are the English and Scotch firms who do the "exclusive" business and who see their confined styles copied prematurely. For the most part they are too angry to appreciate the implied compliment which imitation affords.

* * *

The grievances of Lancashire textile workers, as unfolded to the Home Secretary, include many points. They want a standard of lighting in the interests of personal safety; which matter is one especially affecting the old mills. They want dust-removal apparatus to be compulsory in card and blowing rooms and to this Winston Churchill has replied that notice is being served on employers saying that an improvement in dust conditions is expected of them within a limit of time. On the subject of the abolition of weaving fines the Government is conferring with the employers. And factory inspectors have instructions to warn manufacturers against setting men to lift heavy weights, like warp beams in the vicinity of moving machinery. Here, as in some other matters, the pressure of organized labor makes for the adoption of improved appliances and plant. Here also the evident disposition of the political head of the Department and of his permanent officials, is towards the workpeoples' views. Quite a formidable number of ex-officials of unions are now installed in the bureaucracy.

* * *

A steam control apparatus for dye-vessels, invented by Alfred Baldwin of Keighley has been interesting wool dyers. A mercurial thermometer is placed in the dye-liquor and an adjustment is made whereby the mercury on reaching a given height completes an electrical circuit and cuts off the steam that is used for heating. As the mercury falls the circuit breaks, the governor opens and steam again issues. According to the inventor of this iso-thermal valve the vat can be kept steadily between 205° and 206° F. for wool dyeing. An even heat is favorable to levelness in dyeing and the absence of boils-over and some economizing of steam are among the advantages of control. By way of criticism, one hears it said that an electrical device of this kind is too delicate for dye house use, but this point must be left to experience for final adjudication. Then there are dyers who contend that the economy in steam is not attractive enough to justify a heavy outlay. Steam costs them perhaps 5 or 6 per cent. of their cost of production and it is a stock argument that the items which bulk heaviest are the ones to reduce. All the same, the valve has its upholders and admirers.

* * *

In this country every endeavor is made to induce the farmer to use no twine in tying his fleeces and consequently the report that American growers are taking up paper twine enlists little enthusiasm. From the English wool buyer's point of view the tie for a fleece is formed by twisting a little of its own fiber, passing this round the roll once or twice and securing the end simply by passing it under. As one of them argues: The farmer who uses twine uses too much of it. He passes it round the circumference, then endwise, ties a good hard knot or leaves lots of overlap. The string is troublesome to untie and to get rid of; it is apt to leave some of its fiber behind; and the twine off the eighty or more fleeces in the bale represents a dead loss of a pound or two to the purchaser.

Admitting that paper twine is to be preferred to sisal twine and other abominations of its sort, it is stoutly maintained that twine is unnecessary. A great many English growers have been brought round to this view, but the Devon men are obstinate and still tie up their wool as though it were a long-distance package meant to travel by itself.

* * *

A process for making balloon fabric gas-tight and waterproof without the use of rubber is recorded from Glasgow. As the treatment costs more than the silk it is applied to (adding $5.25 per square yard to the price of the cloth) it can be commercially used only for highly exceptional purposes. Ad-

vantages in lightness are claimed by the inventors.

Rubber waterproofs seem to have fallen heavily into disfavor this season. On all hands there are accounts of a great demand for goods proofed by the no-rubber processes. The very high prices of rubber during last year led to so much employment of substitutes that it is to be doubted whether many so-called rubber garments had any of that material in them. Then a number of poor fabrics were treated and turned out badly in wear. Fawn coats which developed large green stains on exposure to air and the fugitive dyes contributed their quota towards the general discredit and paved the way for a larger trade than ever in the acetate and wax proofs.

## MOISTURE IN TEXTILE FIBERS.

*BY JAMES CHITTICK.*

The way in which all textile fibers will absorb moisture is a matter of common observation, but very few woolen or worsted manufacturers appreciate the extent to which this property may affect the costs of their goods. The spinners are generally much better informed on this subject than are the weavers, but naturally they do not tell all that they know.

The air about us is composed in part of a considerable proportion of water, which varies widely from day to day. It follows that all textile materials exposed to the air will take up a portion of the moisture and in such a condition the fiber is in its normal and natural state.

Exposure to an unusually moist atmosphere will increase this proportion, while by drying the material this moisture can be driven off. Out of an ordinary suit of clothes, made of 16 oz. cloth, it would be quite possible, under normal conditions, to extract more than half a pint of water, but after reexposure to the air this amount of water will be very rapidly taken up again.

The normal moisture in the air will be quite different in one locality from what it is in another. Thus the air in districts like New Bedford, Mass., and Lancashire, Eng., carries much more moisture than in districts further inland and at greater elevations. As the weight of textile material will be materially greater in the damp place than in the dry place, it was long ago found that, in the buying and selling of these commodities, some average standard of moisture would have to be agreed upon, so that both buyer and seller would know what amount of fiber was delivered. Whether this standard was exactly the average of the conditions prevailing in the districts in which manufacturing was carried on was not of so much importance. The vital thing was that some standard should be arranged for upon which all transactions should be based.

Certain proportions of moisture for textiles were long since agreed upon in England and on the Continent, and these same standards are the recognized ones for use in the United States, so that transactions, either at home or abroad, are all made on the same basis. The proportions of allowable moisture are generally stated in the form of a regain, that is, a percentage of water to be added to the absolute dry weight of the material.

This regain is often spoken of as the percentage of water in the article, which is an error. Thus, silk has a regain of 11 per cent., so that if to 100 pounds of dried out fiber 11 per cent. of allowed moisture is added, making 111 pounds in all, this figure is stated as the "conditioned weight" of the silk, that is, the weight that it should be in its accepted normal condition. The 11 pounds of water in the 111 pounds is, however, only 9 101/111 per cent. (nearly 10 per cent.) of the whole, so that silk should contain about 10 per cent. of moisture, equal to a regain of 11 per cent.

The standard regains in moisture, as officially recognized in New York, Bradford, and elsewhere, are as follows:

| | |
|---|---|
| Worsted tops combed with oil | 19 % |
| Worsted tops combed without oil | 18¼ % |
| Worsted yarn | 18¼ % |
| Carded wool and wool waste | 18¼ % |
| Shoddy yarn | 13 % |
| Worsted noils | 14 % |
| Scoured wool | 16 % |
| Woolen yarn | 17 % |
| Raw cotton and cotton yarn | 8½ % |

| | |
|---|---|
| Linen fibre, linen yarn, and hemp | 12 % |
| Jute fibre and jute yarn | 13¼% |
| Tow fibre and tow yarn | 12½% |
| Raw silk, carded silk and spun or schappe silk yarn have been added to the fibre itself | 11 % |

The question of the moisture in a yarn, be it noted with care, must in no wise be confused with the oil, soap or other substances which are natural to, or which have been added to, the fiber itself. Raw silk, for instance, carries a considerable percentage of a natural gum which can be readily discharged by boiling in hot water and soap. Cotton has a quantity of waxy matter in its make up which accounts for the loss of weight in bleaching. Raw wool carries a large percentage of grease and other substances.

The silk throwster, before throwing the silk, gives it a soaking in a bath of hot water, soap and oil, part of which soap and oil it takes up. Cotton is generally spun dry. Wool is thoroughly freed of its natural grease, but to facilitate the spinning more or less oil is put into it.

When the material is dried out in ascertaining its proper or conditioned weight, these substances, gum, soap, oil, etc., are not evaporated, and their percentage must be ascertained in another manner, i. e., by boiling the material with suitable agents until nothing but the pure fiber remains, and then ascertaining the absolute dry weight of that.

To enable manufacturers to determine what they are buying testing establishments, or conditioning houses, as they are called, have been established in the great textile centers of England, France, Germany, Italy, and other Continental countries, and also in New York City. Small samples of the material, selected with a view to properly represent the lot, are subjected to most careful and accurate tests and from these sample tests conclusions for the entire lot are arrived at.

All the facts cited so far are matters of common knowledge or, if not, anyone interested could get the information for the asking. This being so one would suppose that those who sell, and buy, and use wool in the grease or scoured, tops, worsted or woolen yarns, etc., would have careful tests made of each lot of material purchased, to see that it did not contain more than its proper percentage of moisture and also to see just what amount of oil and other substances it carried.

It is the custom to do so abroad but, with the rarest exceptions, this important check upon their costs is neglected by the woolen and worsted interests of the United States. Manufacturers who would not permit the spinner to charge them a tenth of a cent a pound above the agreed price, will cheerfully accept five per cent. of water in their yarn that should not be there and pay for it without a question. When goods are finally woven, and scoured, they should contain nothing but the absolutely clean yarn, plus its normal moisture.

In constructing a cloth the weight that it must finish is always borne in mind and a sufficient weight of material for the purpose must be provided. If one spinner's yarn carries less water and oil than that of another it will naturally require fewer pounds to give the desired result. In the spinning of woolen and English-spun worsted yarns it is necessary for the proper working of the stock to add some oil to it. The amount of this will vary with the quality of the wool, its length of staple, the fineness of the count, the amount of shoddy or other admixtures, the twist, the kind of machinery used, and what not. From this it is evident that the spinner of the yarn must be left free to use his own judgment as to how much oil he will put into his mixture.

While some spinners are thoroughly conscientious in this matter it is safe to say, in view of the fact that oil is cheaper than wool, that if there is any question as to the quantity of oil to use, even these will not err on the light side.

Take the way in which yarns are commonly handled. A weaver desires to get up a wool dress goods fabric and estimates that a 4 1/2 run wool warp and a 3 1/2 run wool filling will do the work. He consults a spinner who furnishes him with some samples of suitable yarns and after some dickering quotes him a firm price. The weaver makes samples of the goods and, if they turn out

right, proceeds to take orders on them. The sample blankets being small, and possibly also being gigged and sheared, he cannot well tell from the weights before and after finishing about what amount of oil was in the yarn. He then orders the yarn for his goods, which are delivered in cases, the warp yarn perhaps on tubes and the filling on mule bobbins. The gross weights of the cases are taken and, after the yarn is woven up, the weight of the cases, bobbins and tubes, is found and so the net weight of yarn is arrived at.

Now how much oil is the weaver paying for and how much should he pay for? How much water is he getting? Possibly a good deal, as the yarn may have been stored in a damp place, or a soap and water emulsion may have been used on the stock. The weight of the tubes, bobbins and cases will also fluctuate somewhat from day to day. If he is using worsted yarns they may be delivered to the mill in the skein, and then sent to the dye house to be colored, or the spinner may deliver them direct to the dyer. Or the yarns may be stock-dyed or slub-dyed and be delivered on 6-inch spools or on dresser spools.

The consequence is that worsted yarn will be carrying all the way from one-half of one per cent. to, say, five per cent. of oil, and the oil in woolen yarn may range from seven to fifteen per cent. The moisture, also, may be far in excess of the standard allowance, and of course it may be less, though it is not customary for spinners to store their yarns in extra dry places.

Under the present practice spinners give no guarantees, when quoting prices, as to the limitations of oil and moisture that they shall be held to, and it may be impossible at present to get many, or any, of them to commit themselves on these questions. At the same time it is greatly for the interest of conservative spinners to bring these points strongly to their customers' attention, and, by encouraging them to make regular tests of their yarns, it follows that loose or dishonest practice on the part of unscrupulous competitors should be shown up.

A workable method of getting the information required would be to have conditioning and boiled-off tests made of each delivery of yarn, or on some regular quantities such as every 1,000 pounds or so.

Samples should be drawn, as evenly as possible, from various parts of the lot, and sample skeins should be reeled from same. Twenty tubes, or skeins, might be selected and a reeling of half an ounce or more taken from each, every reeling being the same length. These reelings should be very accurately weighed, both singly and in total, and it is well to see that the addition of the single tests correspond with the total weight. The weighing should be done in the same place where the yarn is that is being tested. This is so that the atmospheric conditions will be the same. At the same time the yarn itself—net if possible, gross if not—should be carefully weighed and the weight of that and of the sample recorded.

These samples should then be mailed either to a conditioning house with a statement of the exact weight of the reelings, and a request for a conditioning test and a boiling-off test.

As a result of testing woolen yarns for excessive oil I knew of one woolen spinner who, when taken seriously to task on the subject, managed to deliver thereafter yarns with such a reasonable amount of oil in them that, after scouring, there was a gain in weight to the manufacturer of five per cent. and this on a yarn costing sixty cents a pound. In another case a worsted spinner got a large order away from a competitor at a price of ninety-four cents when the competitor's lowest figure was one dollar. When the first deliveries were arriving, the wool market not having changed in the meantime, the competitor happened to be on the ground and, observing the condition of the yarn, remarked that he would be happy to supply it at even less than ninety-four cents if he were permitted to use the oil can as freely. The result was that the manufacturer's eyes were opened and he investigated the matter and found that he was getting nearly seven per cent. more oil than he should. As the samples from which he had bought were not unduly oily, he compelled the spinner to allow on the lot delivered and to cut out the oiling on subsequent shipments.

# Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

### Soap and Oil Solution.

*Editor Textile World Record:*

Please let me know what I can use to keep a solution of oil, soap and water from separating. This solution is made by boiling the following ingredients:

14 gals. prime lard oil,
30 lbs. olive worsted soap,
30 gals. water.

Perth (1263).

The quantities of materials indicated by our correspondent are not properly balanced, the quantity of soap, being only 7.9 per cent., is too small to emulsify the 27.3 per cent. of lard oil. As soap itself is an emulsifying compound the greater the amount used the greater will be the result. It is suggested that our correspondent use not less than 25 pounds of soap in this mixture and increase the amount of water by 10 gallons. To effect a more thorough emulsification of the oil the addition of a few pounds of concentrated soda crystals is recommended, as it will aid materially. Very good results are obtained by the use of a few quarts of any good sulphated oil, taking the place of a corresponding weight of soap. It is presumed that our correspondent's mixture is intended for oiling wool, and if such is the case he will find should he use a mixture containing sulphated oil, that the lard oil will not separate after boiling, and that the scouring out of the lard oil will be more easily effected. Berwick.

If the soap is of a good quality, it alone should be sufficient to emulsify the oil and water present. The designation, "olive worsted soap" is, however, a rather indefinite one. If it is an olive oil soda soap containing about 25 to 30 per cent. of water, the proportion here given should easily carry the oil without any separation. If, however, the soap is only a soft soap made up with a large proportion of water, it is probable that there is not sufficient real soap present to properly emulsify the oil and water. To bring about such an emulsion that will not separate into its constituents, it will be necessary to add a small amount of alkali to the mixture in question. I would suggest the use of 3 to 4 lbs. of soda ash. The latter should first be dissolved in some water to be used by boiling, and then the solution added to that of the soap and oil, and the whole mixture well boiled up together. If it is not desirable to use soda ash on account of any special use to which the emulsion is to be put, a milder alkali like borax may be employed. About 4 to 5 lbs. of borax should be substituted in this case for the soda ash. The use of borax will make the emulsion somewhat more expensive, but its alkalinity will be much milder. Howell.

### Bleaching Lace Curtains.

*Editor Textile World Record:*

I would like to have you publish some articles by practical men on the bleaching of lace curtains.

Bleacher (1256).

In response to "Bleacher's" question we publish the following information on the bleaching of lace curtains:

The first process in bleaching lace curtains is to boil the goods in a kier for about 8 to 10 hours. They are then washed in tom-toms or dobby washers, after which they are bleached in the bleaching tank. When white enough they are lifted out to drain and again washed in the tom-toms. The goods are put in the sour or vitrol tank, and then soaped, washed and dried in the tom-tom. These operations required much time and necessi-

tated a number of handlings, all of which made the damage quite large. After using this process in England for a number of years we began to look around for a better method. We found a yarn bleacher in another part of the country who was bleaching yarn cheaper and better than any others and we concluded that the same method could be applied to lace. The system was patented and he had to pay a good price for the patent right. All we had to buy was enough pine boards to build a tank 8 feet square, one centrifugal pump, one receiver and some pipe. We then built two brick tanks in the floor and that completed our new plant. We put the goods into the wooden tank, boiled them in the usual way, and then pumped the bleaching liquor on top of the goods until they were white enough, the liquor returning to the tank in the floor. By an arrangement of valves the goods got a good washing without moving from the tank. We then pumped up the souring liquor in the same way as we did the bleaching liquor, and washed the goods off with clear water. The goods were then taken out of the tank and given a slight soaping in the tom-tom. Using this process we found we did not require nearly as many tom-toms nor men, and the result was very satisfactory, there being very few damaged goods.

After coming to America I had to work with what the people had and have been in a number of plants where they bleach lace curtains, but have never found as satisfactory a method as the one mentioned above. I was running a bleaching plant in a lace mill some years ago, but the work turned out was not very satisfactory. I told the superintendent about the above method, but he happened to know of a mill in which this process was employed, they having sent to England for it, but in this mill it turned out to be a failure. I made it my business to call at this mill and see just what the trouble was. I found the valve arrangement to be all wrong and the goods were in a hard mass. When the bleaching liquor was put on the goods were bleached only in spots. The man in charge did not know anything about the process, which, if properly worked, gives excellent results. Hector.

### Size for Silk Yarn.

*Editor Textile World Record:*

Can you send me a formula for sizing or otherwise treating silk yarn to facilitate the knitting of the same. Tokio (1270).

It is presumably spun silk-waste yarn to which the inquiry refers. Any treatment of the kind is unheard of in England where the whole object of all parties concerned is to produce for knitting purposes the fullest, freest, bulkiest yarn possible. Consequently it is difficult to understand what the inquirer would be at. Supposing him to want a soluble form of starch which can be easily applied and easily dissolved out after knitting, a silk man of great experience suggests rice-water; the same that is used to hold together raw silks in the East; the least adhesive of starches. A finisher with more claim to know starches and less to know silks, suggests hard-boiled dextrin; partly because it would assist to give the goods the "scroop" which some consumers demand. Without more knowledge of the inquirer's circumstances and intention it is hardly possible to give more information either as to the composition or the machines. Argus.

### Trouble with Sizing.

*Editor Textile World Record:*

We note the inquiry of "Phidias 1257" in February's issue of your paper, and that he is troubled with caking of his size in the size box. We also note suggestions offered to remedy the trouble, which may or may not overcome the small, hard particles on the yarn.

While this trouble may be due to a number of causes, it is very likely due to the size mixture used rather than the arrangement of the size box or length of the boil, as "Phidias" states the size becomes lumpy after standing for ten or fifteen minutes.

We would suggest the following size mixture:

100 lbs. of corn starch,
10 lbs. of gum tragasol,
5 lbs. of best tallow or Danamar softener.
Water to desired consistency.

This will make a fine creamy mixture that will stand up indefinitely, and will not get thin or sour. It will penetrate evenly.

Gum tragasol is a vegetable gum, which is partly soluble and partly suspendible. Reduced with any quantity of water, it will stand up indefinitely. It acts similarly in a size mixture, and will hold the starch up so there will be no settling or lumping. Furthermore it has great penetrating, agglutinating and preservative properties.

"Phidias" certainly cannot get satisfactory weaving from improperly sized warps, and we think the formula suggested will not only overcome his troubles, but will enable him to speed up his slashers, get a fine weaving warp, and the best possible production from his looms.

In conclusion would say, we would be pleased to send "Phidias" a sample keg of gum tragasol, without charge, should he desire to try out the above suggestion.

Danker & Marston.

## A Peculiar Defect.

*Editor Textile World Record:*

We are making some light weight gray pieces in which the black is chiefly wool and the white cotton. We found the other day on perching a piece which came from the press only about an hour before, that there were repeated bars of a bluish cast. In fact the pieces look as if there were half a dozen different shades all red and blue tints. On cutting off a clip from an end to match with, it was so much more densely blue that the two could not have possibly been made up together. We finally noticed that every blue bar had a crease through the center of it, and then we found that every crease, as the piece lay in folds which was exposed to the air, showed bluish when pulled over the perch. Apparently the difficulty was connected in some way with the air or heat left in the folds. We took one or two pieces back and ran them over the shear a number of times with the blades and brushes off in order to expose them thoroughly to the air, and then rolled them up. The next day on perching them we found apparently perfect pieces with no signs of rowiness. We had two pieces lying on a skeleton rack. When these were perched for several yards in from the bottom end the pieces showed blue where free from pressure and exposed to the air between the cleats of the rack, and decidedly reddish where the cleats came. After hanging the end of this piece on the perch for half an hour the difference entirely disappeared and the whole piece was uniform.

About one-eighth of the stock is carbonized wool colored with —— black. This is put on with formic acid afterwards topped with chrome and rinsed. I imagine that there is something about this dye or chrome that in the fulling process distributes itself through the cotton, and the heat of the press changes the color temporarily. The remainder of the stock is white cotton and wool. The goods are treated with red oil, napped, fulled for about two hours in alkali soap, just strong enough to leave them free of odor. Then they are rinsed, dried, sheared and pressed in the ordinary way. They are not dyed at all.

We would like very much to have you bring this peculiar difficulty to the attention of your readers and if possible obtain an explanation of the cause. Dayton (1265).

We referred this question to an expert in dyeing with chrome black and he writes as follows: "The carbonized stock that is being used may be the cause of the difficulty. If not thoroughly neutralized it contains a residue of sulphuric acid that works against any chrome black, the latter being dyed with acetic acid."

## Superheated Steam.

*Editor Textile World Record:*

We use a set of drying cans for cotton piece goods, but the capacity of these cans is insufficient for our requirements, and on account of lack of room it will be impossible for us to install another set. Will you please advise us if it is practicable to use superheated steam in these cans, and would it be very expensive to install a superheating system. We have never to our knowledge heard of superheated steam being used in drying rooms of dye houses to increase the output of drying cans, but possibly you can furnish some information on the subject. Our cans are made for a maximum pressure of ten pounds, therefore we do not get the heat temperature that high pressure cans would give. Nelson (1272).

The use of superheated steam, so far as I know, has never been attempted in steam cylinders as ordinarily used in cotton finishing establishments, because the so-called "hard" or fast drying should be avoided on all fabrics.

In print works, where many independent steam engines are required, the exhaust steam is used to advantage to supply the drying cylinders. If the set or number of cylinders is sufficient, the production can be cared for, and excellent results have always followed the rather slow evaporation of the moisture, which leaves the material mellow to the feel, something not obtained when

dried "hard," hence we have a decided objection to the use of superheated steam in drying.

The problem presented can be easily solved, and we would recommend that if a cell drier required, take the contact circumference of the present set of cylinders, note the present daily output, determine what increase is required and figure how many inches in contact drying will be needed for

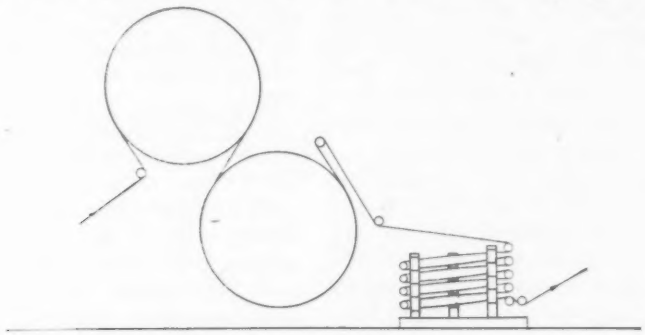


FIG. 1. A STACK OF CELL DRIERS.

floor space of only six feet in length is available in the dry room, a single stack of cell driers be added to the set of drying cylinders, as shown in Fig. 1. These cells, built for any width, are 52 inches long, or equal the increased production. Assuming that the present set of cylinders has a contact of 1,000 inches a single stack of cell driers to accommodate it will be necessary to remove 1/4 of these cylinders. In order to double

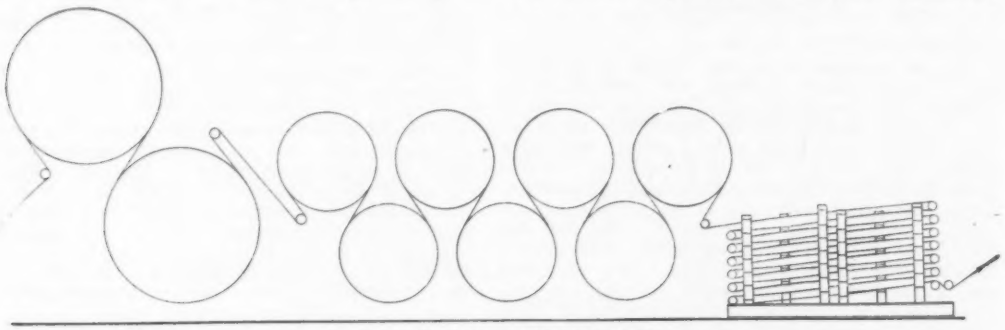


FIG. 2. A DOUBLE STACK OF CELL DRIERS.

in drying contact to two 23-inch cylinders as usually installed. The cells are piled one upon the other, and the number of cells so stacked is limited only by the height of the room or ceiling. The cloth is carried over these slightly curved cells by brass carrier rolls, positively driven by gears or a chain. This single stack would accomplish the drying entirely on one side of the fabric.

If there is no available floor space whatever I would suggest that some of the cylinders be removed and a stack of cell driers substituted. To determine the size of the the original production, 1,250 inches must be supplied by the cell drier. Each cell being 52 inches long, face and back contact gives 104 inches, hence a stack of twelve cells would be required. This would occupy a floor space less than 6 feet in length and would stand about 11 1/2 feet high. Fig. 2 shows a double stack of cell driers increasing the cylinder capacity as shown by 100 per cent. This installation would take up a floor space of 11 1/2 feet in length, but will have the merit of a more even distribution of weight on the floor. John D. Street.

### Bleaching Linters.

*Editor Textile World Record:*

I am boiling low grade cotton, or linters, in an Allen improved boiling kier, bleaching the material afterward. I am enclosing a small sample of the stock bleached and would like to know the cause of the tint in it. You wil note that the fiber is damaged, but this was done by the bleacher in trying to overcome the yellow shade.

Columbus (1266).

It seems to me that the yellow shade is caused by the material not being boiled long enough, or else the goods are boiled too long in one liquor, and in that case no amount of chemic will give the white shade desired. If the goods are not being boiled long enough, try letting them stay in the kier another hour and if the yellow shade is still there, then note the color of the liquor as it is drawn off. If it is a dark brown shade, the goods should be boiled only about two-thirds the time of the original boil. Draw off the dirty liquor and flush the kier for a few minutes, then mix a weak solution of ash and soap, or some other bleaching assistant and boil for the other third or a little longer if necessary. If the goods are thoroughly bottomed in the boiling process they require less chemic in the bleaching process. If the material is very dirty about three per cent. of caustic would be required and two per cent. of soda ash in the first part of the boil. After the flushing use about one per cent. of soda ash and two to three per cent. of soap or bleaching assistant, not using any chemic in the last boil. If this does not give the desired whiteness, mix in the chemic two per cent. of soda ash and use this in the chemic bath, using it at the same strength as if there was no soda ash in it. This will give a good white but care must be taken of the goods as they are taken out of the kier. If the goods are a good color they will not require the same strength as goods that are a bad color when they come out of the kier. One thing I am certain of, if the goods are not bottomed in the boil, whether it is raw stock, yarns or piece goods, no amount of chemic will bottom them after. It will whiten the goods a little, but they will not stay white, simply because they are forced, and in a very short time they develop the yellow shade like that of the sample sent.

Dulcimer.

### Meaning of the Term to "Cobble."

*Editor Textile World Record:*

What is the meaning of the term "cobble" when applied to dyeing? Rochester (1267).

Merino is originally a Spanish word and is the title of the overseers of cattle pastures and of certain judicial officers. According to the highest Spanish authority, merino sheep are a breed of sheep which is pastured in the winter in Estremadura and in summer in the mountains. This explanation by the Spanish Academy discountenances the idea that merino was in some way related to "marina" the sea. Estremadura is not even a seaward province of Spain, but a south-central one on the Portuguese frontier. Some of these sheep were imported into England by George III. in 1786 and were used by leading breeders, and animals of the same strain were exported to the colonies. A historian of the worsted trade has supposed these sheep from Spain to be the improved pedigree of certain sheep sent from England in the time of Edward III. There are no conclusive proofs that the breed was directly developed from the type of sheep found in England before the Norman invasion.

The connection between "merino" applied to sheep and "merino" applied to wool is clear, but men in the textile business do not call merino wool by that name. Merino is admittedly the proper name, but the worsted trade prefers to call it "botany"; which name is derived from Botany Bay, New South Wales, formerly a convict settlement. In the Yorkshire woolen trade, one hears more often of "Port Philip" wool or "Cape" wool than of merino. The Scotch woolen trade calls merino "Saxony" and classifies the coarser wools as "Cheviots." About the same time that Spanish sheep were brought to England some were sent to Saxony, were well-handled there and became a source of supply to British manufacturers. In all three instances the tendency to call wools by the names of the points they came from, rather

than by the family name, is apparent.

Merino is a standard name in the rag trade and a request for samples of merino wastes brings samples of pulled gentlemen's suitings and of merino quality. One of the chief concerns in the Dewsbury district bears the name Extract Wool & Merino Company; extract wool is of course carbonised fiber, free from cotton.

Merino in the knitgoods business has a different signification. An unwritten law bids the Englishman: "If you find a good name, take it." That law explains why merino hosiery means goods composed of wool and cotton; also why "lamb's wool" hosiery very often means low-grade shoddy woolen and why "llama" and "cashmere" knit goods have usually no connection whatever with goat's hair.

Merino is also the name of a weave. Merino, or French merino, means to the dress goods man an all-wool fabric, single warp and single weft, twilled both on the back and face and differing only from cashmere in that the latter has a twill face and a plain back. Samples of what are sold as merino dress goods at the present day are sent herewith.

The meaning of "merino" in this connection has turned a complete somersault within the last century. James in his "History of the Worsted Trade" shows that prior to 1826 a worsted cloth known as "plainback," made from relatively heavy yarn, had been originated by James Aykroyd & Sons, Brook House, Ovenden, Halifax, and had been made in large quantities by several manufacturers. In that year Todd, Morrison & Co., London (now the Fore Street Warehouse Co.) communicated to Mann, a Bradford merchant, their idea that a "plainback" made with the finest merino yarn would sell well. Mann employed the Garnetts of Bradford to carry out the work and they made a fabric twilled on the face and plain on the back, using 40s-52s filling and 32s-38s warp in 27 inch width, selling at prices between 75 and 80 shillings ($18 to $19.20) a piece (probably of 28 yards). Six-quarter goods were introduced in the following year and these improved plainbacks became known far and wide as "merinos." The inversion of the meaning of what was clearly a well-defined term may presumptively be attributed to contact with French practice. French merino dress goods are the only ones now met with in the market and the samples sent are evidence that they are not all made of merino wool.

James Strand.

[The samples to which reference is made can be seen at our Boston office. Ed.]

### Fadges of Wool.

*Editor Textile World Record:*

On page 568 of the Textile World Record for August you say "(a) wool in bales, (b) in fadges, (c) in sacks." What are "fadges"? Brier.

In the case in point "fadge" evidently implied a package smaller than a wool bale and larger than an ordinary grain-sack. In Bradford wool warehouses the term is still used in common speech. A man might say he had "two sheets and a fadge" of Lincoln wethers, meaning two full sheets and a remainder too small to fill another. No exact value can be put upon the term in the Bradford usage other than that of "small package."

The term is an ancient one of uncertain derivation and there is a record of its use as far back as 1588 in the phrase "three hundredthe & thrsttene fadges of lynte." The same word has been found in connection with sticks, leather and cloth in the sense of "bundle." The definition "bundle fastened with skewers" has been assigned to it by one writer, but the skewers are not the material feature of wool fadges nowadays.

The word exists in the folk-lore of the hand woolcombers. What the hand-combers called their fadge was a sack having a circular opening made in the middle to receive the head and neck. Thus the burden hung about the man half before and half behind, leaving the hands free to carry the oil bottle and anything else. In the days of their prosperity every comber had his beast of burden—usually a mule. The last survivors are remembered straggling to and from market with the fadge described, fetching wool and oil and returning tops to the "maisters" for whom they combed.

James Strand.

# Knitting Department

## THE KNIT GOODS SITUATION.

The situation during the past month in the knit underwear end has not differed materially from that existing during the month of February for many former years. There have been a few buyers in the market during the greater part of the month and all of them have been placing orders to some extent, but as they are, as a rule, buyers for the smaller jobbing trade, there has not been the total volume of business that there was during the month of January. However, it all goes to make up the grand total and we find that manufacturers are fairly well satisfied with the business thus far obtained.

It was reported that the Union Mills, which make very large quantities of men's fleeces, as well as ladies' ribbed goods, have ten months' production sold and we believe there are several other manufacturers in a like position.

The Blood Knitting Company claim to be sold up for the entire year, the bulk of their business being taken on eleven pound men's ribbed goods at $3.60, with a small percentage of twelve pound goods at $3.75.

During the month just past, the prices on ladies' 25 cent ribbed goods have been advanced by some manufacturers. The garment made in the MacKinnon Mill by the trustees is now held at $2.10 for six pound, and $2.35 for seven pound, with an additional charge of ten cents per dozen for bleaches. The Royal Gem Mills are asking $2.10 for their six pound garment and claim that they do not care for business on this line without orders for their better merchandise.

Some of the Pennsylvania manufacturers are booking orders on ladies' ribbed goods, running about five to five and one-quarter pounds in weight at $1.75 to $1.80. These are made with cotton trim and without sleeve gussets, and it is believed that jobbers have selected them quite freely.

Business on spring lines has lagged during the months of January and February, but there are indications that the present month will witness considerable activity in light weights of all kinds. Jobbers report that the retail trade have started to ask for immediate shipments of orders taken for later delivery and are showing a gratifying interest in light weights generally.

Orders for men's balbriggans are coming in more freely than for several months and there are many who state their belief that the bulk of the business on men's summer underwear will gradually get back to balbriggans and away from the fads and fancies of woven cloths and meshes which have been attracting so much attention during the past two seasons, although we have been informed that a larger business has been done on nainsook combination suits for 1911 than for any other former season.

Ladies' spring ribbed goods are being delivered quite promptly this season, and there are a number of manufacturers, making ladies' straight ribbed vests who are open for business and are in a position to deliver duplicates on short notice.

### HOSIERY.

The hosiery market has been very quiet during the past month in so far as the placing of orders with manufacturers is concerned. Jobbers have been fairly busy making their spring shipments and some retailers who did not place orders in advance for light weights have been fairly liberal buyers during the month of February.

The better known manufacturers of hosiery and those with the larger production claim to have orders on their books to run them for some time to come, but there are many of the smaller and less known manufacturers who are frank to admit that they are in need of business and that unless orders come in very soon, they will be obliged to either accumulate stocks or to shut down for a time.

Some of those manufacturers who changed their lines from 160 to 175 needles over to 220 needle work are finding difficulty in getting out their production on the finer gauges.

It seems that handling the finer numbers of yarn on the dials with the increased number of needles makes it much more difficult to get off the production and also has a tendency to increase the proportion of seconds. Some of the jobbers who placed orders on these lines are now worrying about the deliveries.

New lines of silk hosiery continue to make their appearance every month. A seamless lisle with pure thread silk boot at $2.45 is one of the latest.

A line of men's plaited silk half hose at $2.00 with quite a wide range of colors made its appearance last month, and it is reported that large orders have been placed by the jobbers on a line of full fashioned hose with silk reaching midway between the garter-top and the boot at $3.75. Another new line is a full fashioned silk stocking, lisle garter-top and sole, which is being offered as low as $6.50.

The more recent indications gathered from retailers' experiences show that tan colored hose are destined to be in good demand for the coming season. Embroideries are selling very much better than for some time, and lace hose give every indication of popular favor. It is said that the lace machines in Chemnitz are practically the only ones running full time.

ONE OF THE LATEST STYLES IN JUVENILE SWEATERS WITH HIGH COLLAR.

### SWEATERS AND FANCY KNIT GOODS.

Buyers for all the knit goods jobbers have been in the market and, while they have placed orders for their usual line of merchandise in the various families of fancy knit goods, they have shown extreme conservatism in placing their orders for women's and misses' coat sweaters.

Manufacturers are showing some new ideas in sweater coats and buyers generally have sampled them, but there seems to be an impression abroad that the business on

these lines will show a very decided decrease for 1911.

A new coat being shown is one that may be used with high Byron collar and muffler effect, closed front, but which may be converted into a V neck garment by turning in the collar and muffler front.

Makers of higher grade lines of ladies' coats have shown some exceptionally attractive garments by producing new and fancy stitches and by trimming their coats with fancy tipped collars, tipped pocket lapels by

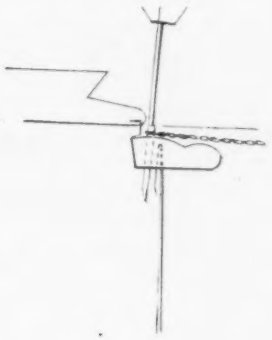


FIG. 65.

lining the pockets with sateen and also by showing a larger range of colors and combinations. Nevertheless, buyers are selecting the entire line very gingerly, and a goodly proportion of the small orders being placed are for the plain stitches. The Byron turnover collar is being chosen more freely than the military.

Among the colors selected is a fair sprinkling of French grey, old rose, laurel, sage, mode and cadet. Of course, the demand for white is larger than for any of the colors, and next to white comes oxford and cardinal.

Business on infants' and juvenile knit coats promises to be of a large volume. Buyers are ordering freely of these lines, especially in red and on those lines with high collars. We illustrate one garment on which jobbers have placed their orders quite freely on solid cardinal, solid white, white with sky and white with pink. This garment gets to the retailer for $1.25 value and promises to be a liberal seller.

## FULL FASHIONED KNITTING.

*BY PAVONIA.*

(Continued from February)

A comparison of a seamless and full-fashioned stocking does not indicate that they were made in such a radically different manner. This has led some manufacturers into thinking that because they were successful in making seamless goods that they were also bound to make a success in full-fashioned. So easy has the work appeared to be that at least one large American manufacturer of seamless goods tried to operate these large full fashioned machines with female help. After a year of hard work this manufacturer became disgusted with the business and sold out the plant. The complication of the full-fashioned business in so far as the knitting is concerned, is not appreciated by the trade or even by many of the seamless manufacturers, but the difficulty of entering into it successfully shows that it

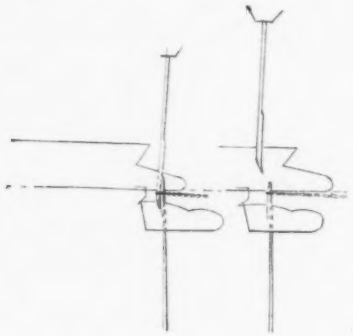


FIG. 66. FIG. 67.

is a trade requiring skill in a much higher degree than other kinds of knitting.

Considering then that the points are clear of any encumbrance, as in Fig. 64, they are moved horizontally past one needle and in direct line with the second needle from which the stitches were taken. In doing this the points move past two sinkers and they also pass over two knocking-over-bits in the making of an ordinary two-needle narrowing. After the side motion has been finished the needles and points again descend to the position shown at Fig. 65, the needles immediately assuming a repetition of the ad-

justments at Fig. 62. The object now is to transfer the stitches from the points back to the needles. After the needles have again imbedded themselves in the points under the fabric, the upward movement is begun.

Fig. 66 shows that the sinkers are brought forward again. This is necessary, because the sinkers must hold the fabric down while the needles slide up into the stitches and while the narrowing-points withdraw from the loops. The adjustments shown in Fig. 66 gives the positions at the time the points are being withdrawn. At this instant the needles are through the loops, but the stitches are not yet under the beards. After the points are withdrawn if the sinkers should be moved backwards over the fabric it could be lifted from the needles. The sinkers instead continue a further forward movement for the purpose of guiding the selvage thread into place as the needles continue upwards. The upward motion continues from the lowest to the highest position in one unbroken movement.

The extreme forward position of the sinkers, and also the position of the points and needles is shown at Fig. 67. Here the shogging back again to the knitting motion begins and is continued until the needles are about half way up to their first position, at which time the cams have moved entirely back to the knitting position.

The narrowing machine has already assumed its original position or the position it maintains during knitting motion, and a few more degrees bring the machine into the adjustment shown at Fig. 59, from which the cycles of both knitting and fashioning were started. The final rise of the needles takes the stitches, which have been deposited on them by the narrowing points, into the knitting position.

In looking over the motion of the narrowing machine again, we find that the slight circular motion is of the utmost importance in taking the stitches from the needles and delivering them again to the needles. It can be seen that the tips of the narrowing-points touch the needles first in descending to pick up the stitches. It is the work of the points to remove the stitches or loops from the needles. The position as shown in Fig. 59 with the tip of the point standing towards the needle materially aids the operation of slipping into the stitch.

Fig. 62 shows the points in their lowest position and where it is advantageous for the points to stand leaning back as in drawing. At this point it is desirous of adjusting the positions of needles and points so that the tops of the needles will press into the grooves of the points and slip up through the stitches which are on the points.

The narrowing-machine is compelled to perform a circular motion because the arms are attached to the center shaft. The narrowing-points maintain the two positions necessary to facilitate the operation of picking up the stitches and of depositing them again. The tips of the points are forward where they are required, and back when the top of the needles is required to pierce the loops when ascending. The motion of the needles is also circular. This is not noticeable in the operating of the machine, it seeming to be a backward and forward movement, but it is in reality an arc of a circle.

## Scotch Tartans.

*Editor Textile World Record:*

Where could I get the exact colorings and designs of the Scottich clan tartans?

Cochrane (1254).

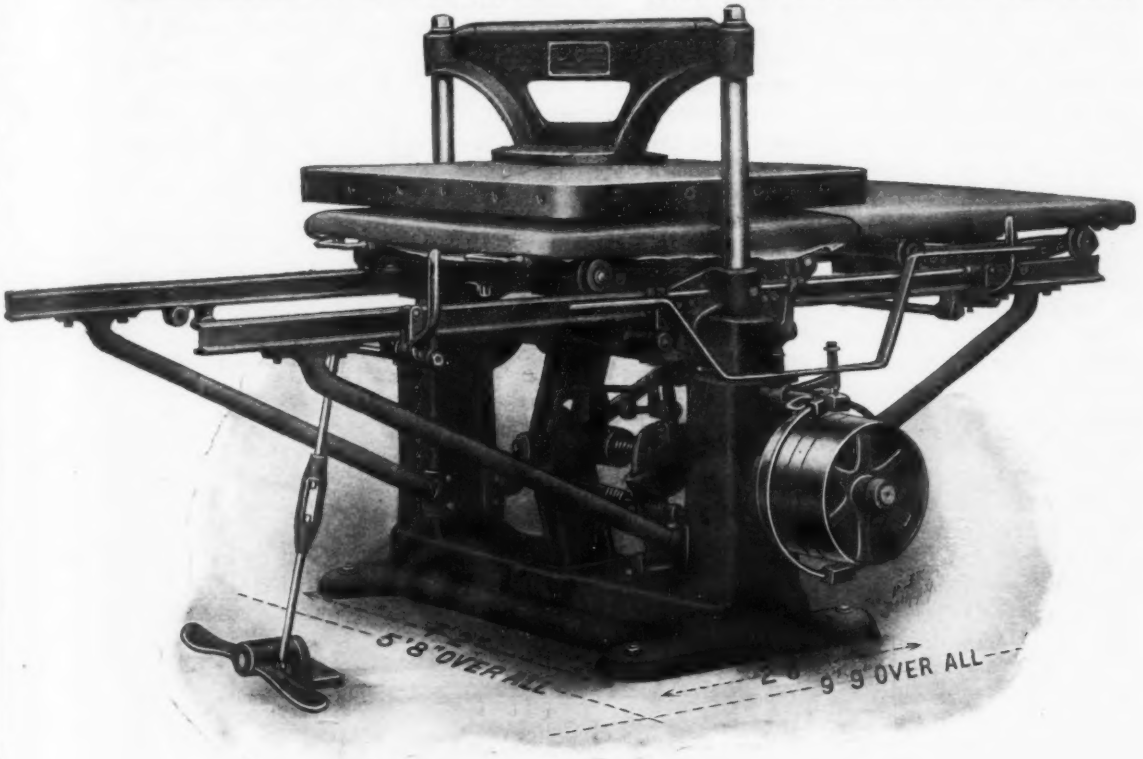
A little book published and sold for 60 cents in 1892 by W. & A. K. Johnston, Edinburgh, contains lithographed plates of 95 tartans with the names and histories of the clans entitled to wear them. According to the preface, the plates "have been taken thread by thread from the actual cloth." A short list is included of the nature dyes used for the production of these goods in the Highlands. Wessex.

The value of the American cotton fiber crop in 1909 was estimated at $700,000,000. Only about one-third of the average American crop is consumed at home. If the entire quantity were used in the manufactures of this country, the total value of cotton goods made therefrom would approximate $1,250,000,000.

## THE "AMERICAN" UNDERWEAR PRESS

We illustrate a press built by the American Laundry Machinery Co., 132 West 27th St., New York, which, while primarily designed for underwear, is well adapted to many other kinds of knit goods. It is claimed that the finish produced by these presses is superior to that obtainable by any other system. The head is steam heated and is tested to 150 pounds' hydraulic pressure so that full boiler pressure may be applied. As the goods have no direct contact with live steam it is claimed that there is no danger whatever of shrinking the garment. The steam heat, of course, obviates any scorching. The two pressing boards are heavily padded and the claim is made that it is absolutely impossible to break buttons with ordinary operation.

Garments may be pressed flat or folded. The garment is spread on the padded bed, which is then pushed under steam chest and locked automatically. The bed is then raised into contact with the steam chest and the pressure applied for approximately ten seconds, or the time required to spread another garment on the other board. The pressure is then released, the bed unlocked, and the operation repeated on another board. Two operators are required, one for each board, consequently the steam heated surface is constantly in use. Only three-fourths horse power is required to operate the machine. It is stated that present users are pressing from 85 to 125 undergarments per day on one of these machines with extremely satisfactory results.




THE "AMERICAN" UNDERWEAR PRESS.

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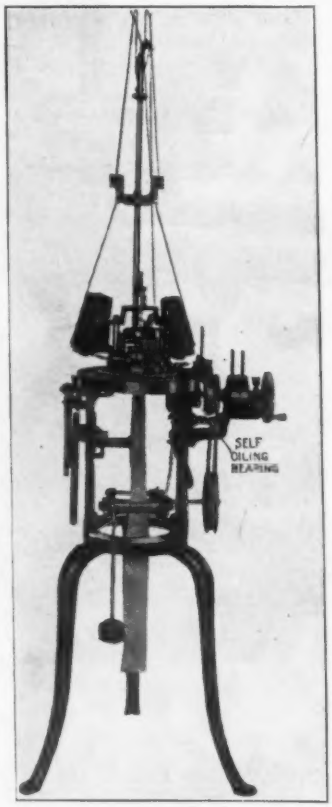
During 1909 Canada imported 1,203,308 pounds of raw wool from the United States, and 2,797,758 pounds from the United Kingdom. The total imports of 1909 were valued at $1,042,662.

## RIBBER FOR PLAIN OR FANCY KNIT GOODS.

The ribber shown in the accompanying illustration is built by the General Machine Works, York, Pa., and is adapted for the manufacture of plain or fancy goods. The builders have made a special effort to obtain simplicity of construction, durability, ease of operation and adjustment, elasticity of the knit fabric and perfection of the goods. As a result this ribber can be run at a high rate of speed without injury to or strain on the needles, giving a large production of perfect goods. The high degree of elasticity of the fabric knit on this ribber is due to the depth of the rib. The cylinder and dial cams are so arranged as to give a perfect stitch with a round French welt. By reason of the simplicity of the ribber, beginners quickly learn to run the machine.

The ribber is equipped with a splicer, lacer, stripper and tuck stitch attachment, all of which are automatic, it being possible to bring them into use without stopping the machine. The patented splicer attachment is very simple in construction and produces a full, solid reinforcement without drop stitches or other imperfections. It is readily adjusted to handle any size of yarn. Recently a Canadian manufacturer placed a large order for the ribber after seeing it running on woolen yarn with the splicing attachment in operation. The lace attachment differs widely from any other lacer offered to the trade. It produces a variety of lace effects by a system of interchangeable pattern blocks, the changing of the pattern requiring but a few seconds. It is adapted for men's half hose, ladies' and misses' flat lace with hem top, and ladies' and misses' full ribbed lace with French welt top. In the last named class of goods the operator can use five separate patterns. The machine for making infants' lace half hose can be run at the same speed as the one making the larger sizes. This feature will be readily appreciated by manufacturers, owing to the large saving thus effected.

The single feed tuck stitch ribber enables new designs to be produced in different forms of stitches, such as double royal, pineapple and triple. The machine is used largely in the manufacture of mittens and half hose with elastic rib fabric down to the heel. The ribber for producing a combination of vertical and horizontal stripes was developed by the General Machine Works and attracted much attention in the hosiery trade when brought out some time ago. At that time one manufacturer made a contract for all the machines that could be made for a certain period. The movement of this machine is similar to the jacquard motion and permits throwing the colors at each revolution or after several successive revolutions on the vertical or horizontal stripe, or on both, as desired.




A RIBBER FOR PLAIN OR FANCY KNIT GOODS.

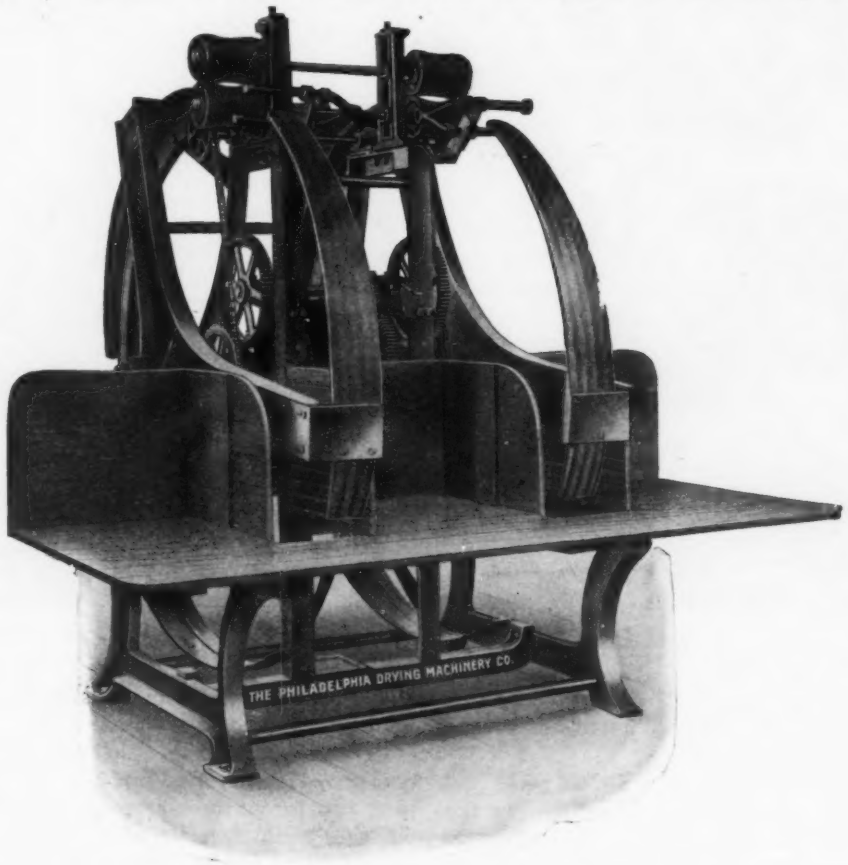
Special attention is called to the automatic stop motion which is positive in action, pro-

tecting the machine against almost every available contingency. It does not cut the yarn under any circumstances. The ribber is adapted for a very wide range of goods in addition to hosiery, including mufflers, glove fabrics and cloth for gas mantles. A manufacturer of gloves asked the General Machine Works whether they could build a machine to knit the main portion of the glove so as to avoid cutting out and sewing together. The result was a machine producing a round hand fabric, doing away entirely with the cutting of a pattern and then sewing together. The fabric has a lace effect, but has a deep rib and consequently the proper warmth.

In addition to their regular line the General Machine Works are constantly experimenting with new devices and invite people with patentable ideas to consult them regarding the development of their inventions.

## A MODERN HOSIERY SINGEING PLANT.

The problem of finishing hosiery in a superior manner and in large quantities has resulted in developing and perfecting the finishing processes. The wearing qualities and the appearance of the goods must necessarily be maintained, and a uniform product turned out. No branch of the hosiery finishing business has undergone such radical changes in the method of handling the goods as has the singeing department. The accompanying illustration shows the singeing depart-

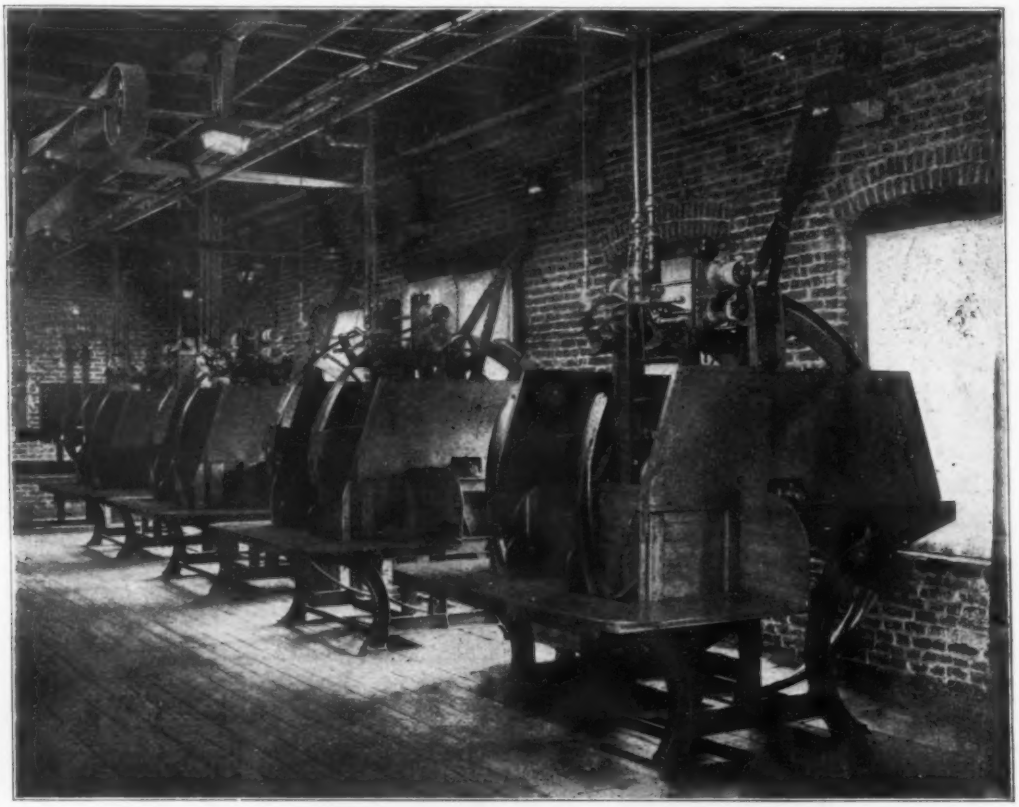



THE "HURRICANE" AUTOMATIC SINGEING MACHINE, HAGAR TYPE.

ment of the Nicetown Dye Works, Philadelphia, Pa., whose president, Walter F. Hagar, Jr., is a firm believer in using the latest and most up-to-date machinery. By careful attention to the details of the business, well deserved success has been attained, until they now have facilities for dyeing 10,000 pounds and singeing 4,000 to 5,000 pounds of hosiery per day.

In their early experience, the old style "flat machines" were used for singeing the hosiery, requiring a great many operatives to board the goods, feed the machines and rehandle the boards, to say nothing of the expense for boards and the loss from seconds, when stockings had holes cut through them, due to the self stripper failing to work properly.

After testing the various types of machines which were on the market, the "Hurricane" singeing machine which was of an entirely new type, was finally installed and this proved to be so satisfactory that the entire singeing department was equipped with similar machines as rapidly as they could be built and installed.



THE SINGEING DEPARTMENT OF THE NICETOWN DYE WORKS.

In the "Hurricane" automatic singeing machine, Hagar type, shown in the illustration, two heavy three-armed spiders revolve on the main driving shaft, carrying six curved forms for holding the stockings. By holding a stocking by the welt, in the path of the form, the latter will cover itself and take the stocking from the operator's hand. Two boys are consequently all the help required in operating one of these machines,

each handling from 400 to 500 dozen pairs, or a total of 800 to 1,000 dozen pairs per day for each machine.

The burners are horizontal and very short, but one pair being sufficient on the great majority of the work, consequently the gas consumption is but a fraction of that heretofore required. Those who have been accustomed to using from six to twelve burners in singeing their goods, have been surprised to see what thorough singeing is obtained during the slow, positive movement of the stocking through the flame, and without danger of burning the goods. After leaving the burners, the boarded stockings pass through the spark extinguisher, and then to the new automatic stripper. Entering a groove traversing the inner side of the form, a steel stripping finger engages the stocking back of the welt and removes it quickly from the tapered form, with no danger of cutting or tearing even the finest goods. One class of goods may be singed on one set of the forms, while a different class is being handled on the other set, and the two lots can be kept entirely separate.

The Philadelphia Drying Machinery Co., 6721 Germantown Ave., Philadelphia, Pa., who are the patentees and manufacturers of these machines, exhibit a number of testimonial letters from prominent manufacturers in this country and abroad, showing great savings over the previous costs of operating the singeing departments.

## THE JORDAN PATENT PIPE LOADING MACHINE.

The illustration represents the Jordan pipe loading machine for roll turner or horizontal dryer, built by the Jordan Machine Co., 5 Factory St., Cohoes, N. Y. It is already installed in a number of representative knit goods mills throughout the country, from which the builders have received gratifying testimonials regarding its efficiency. Knitting manufacturers who wash and nap their fabrics in the roll have experienced much trouble and delay in the stripping of the cloth onto the turning tube, vertical or horizontal drying pipes. This part of the work is generally done with uncomfortable surroundings which cause constant annoyance and loss of production. The Jordan pipe loading machine remedies these difficulties, increases production and decreases labor. The builders of this machine will be pleased to have manufacturers advise them as to the number of turners and dryers operated, whether horizontal or vertical, so they can submit estimates as to how much the production can be increased and labor decreased by the use of the Jordan machine. This device will deposit an average size roll onto a tube in thirty seconds. The builders claim that the saving in cost of operation will pay for the machine in from three to six months. The machine is sold on ten days' trial with privilege of returning if not entirely satisfactory.

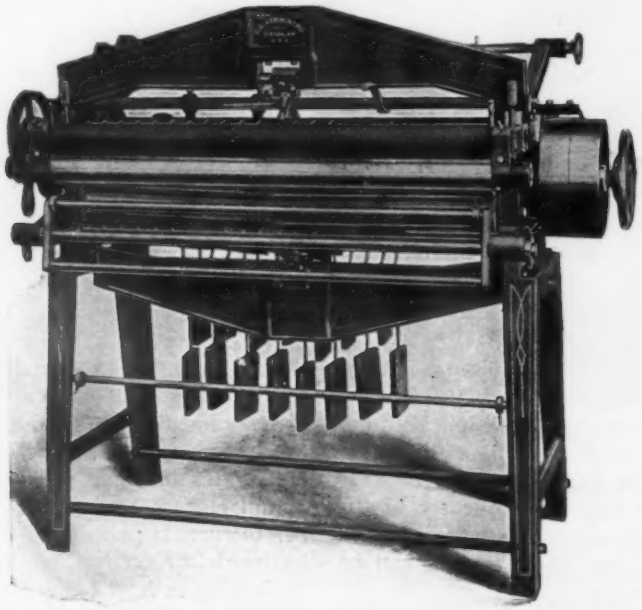
THE JORDAN PIPE LOADING MACHINE.

C. Jordan, the inventor of this machine, is a practical knit goods man and has brought this machine to its present high state of efficiency through being familiar with the actual conditions as they exist in the mills. The Jordan Machine Co. are also building a portable pipe loading machine, which is electrically driven, for loading the vertical drying pipes. This machine can be moved from one part of the room to another, thereby taking care of twelve or more pipes. The builders will be pleased to give any further information desired.

## THE FIRSCHING CLOTH CUTTING, FOLDING AND WINDING MACHINE.

The illustration shows the "1912" cloth cutting, folding and winding machine, which is built by Joseph A. Firsching, 22-28 John St., Utica, N. Y. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls it up in one operation, and cuts one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the number of yards of cloth to show the manufacturer whether he is getting the quantity he is paying for. This machine will decrease operating expenses and gives the maximum efficiency at the lowest cost. The builders state that the saving amounts to a large sum in the course of a year.

The Firsching machines have already been placed in some of the most important mills of the country. The builder will be glad to take the subject up with the manufacturers and give any additional information that is desired. Mr. Firsching builds a full line of machines for knit goods manufacturing, including electrically heated neck marking machines, embossing machines, cloth turning machines, band cutting and folding machines, collarette cutting and winding machines, vertical drying machines, horizontal drying machines, button and button hole spacers, lace measuring clocks, hydro extractor covers, etc. He will be pleased to supply full particulars, description and prices of his products on applications.



THE "1912" CLOTH CUTTING, FOLDING AND WINDING MACHINE.

## A DIAL HOLDER FOR KNITTING MACHINES.

The dial holder shown at Figs. 1, 2 and 3 has recently been patented in this country. Fig. 1 is a side view; Fig. 2 shows a bracket and bearings for the rollers, and the lower end of the holder; Fig. 3 is a sectional view of one end of a roller. Machines for knitting tubular fabrics comprise a head and a dial within the head; the head revolves but the dial must be held, while the fabric passes downward between the head and the dial.

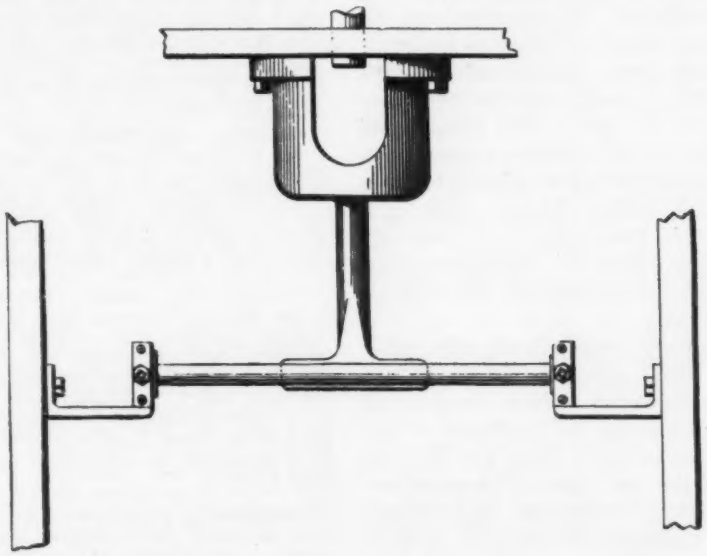


FIG. 1.

As these machines are used with different thicknesses of work it is essential that the

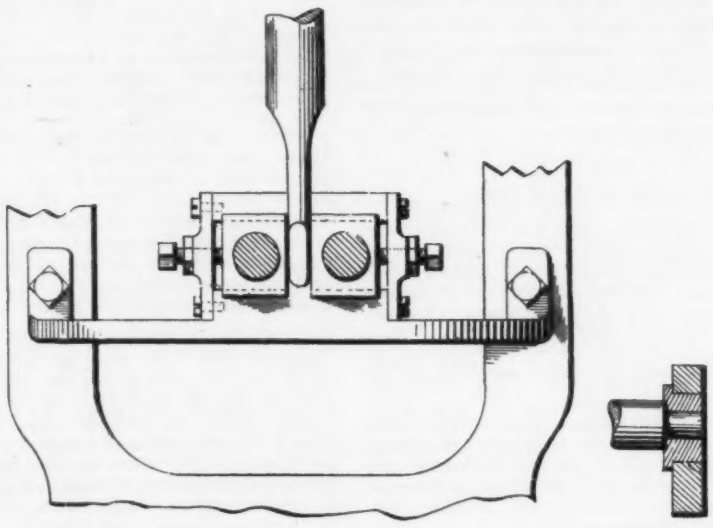


FIG. 2

means for preventing the rotation of the dial should not vary the tension. The object of

this invention is to provide means for holding the dial against rotation. A cup-like head formed with flanges by which it is attached concentrically by bolts to the under face of a dial of an ordinary circular knitting machine is employed. Depending from the head is a stem which terminates in oppositely extending arms. These arms are flattened so that they are less in thickness than the diameter of the stem. The arms stand between a pair of horizontally arranged rollers, which at their ends are reduced to form journals which enter blocks that are mounted to slide longitudinally in bearings formed integral with or mounted upon brackets, which are secured to the sides of the machine frame.

The bearings are longitudinally adjustable by screws so that the surfaces of the rollers may be adjusted toward or from the sides of the arms according to the thickness of the material passing between them and for the adjustment of the machine. The arms extending between the rollers are held against rotation and consequently the dial is held against rotation. The head may be in the form of a cup and serve as a drip cup for oil from the central shaft upon which the dial is mounted and which shaft revolves in the dial. These means for holding the dial may be readily applied to circular knitting machines of ordinary construction and firmly hold the dial against rotation. By adjusting the rollers work of various thicknesses may readily pass between them.

## KNITTING MILL NEWS.

*Illinois, Chicago. The new Earnshaw Knitting Co. will begin manufacturing May 1, making cotton, merino, mercerized and worsted underwear at 1201-1209 Jackson Boulevard, corner of Centre Ave. The capital stock of this company is $24,000. G. F. Earnshaw is president, treasurer and buyer. They will have equipment of 10 knitting and 20 sewing machines and will give employment to about 30 hands.

*Massachusetts, Shelburne Falls. The new Ashoyton Knitting Co. will begin manufacturing February 15 with H. R. Ashworth, formerly connected with the Orange Knitting Co., as superintendent and buyer. Sweaters, caps, mufflers, ties and novelties will be made.

*Michigan, Grand Rapids. Within a week the new Grand Rapids Hosiery Co. will be manufacturing goods. The concern leases space in the building of the Globe Knitting Works, E. A. Clements being president of both concerns.

*New York, Oswego. John Seeber, architect, with offices in the Arcade Bldg., is preparing plans for a 3-story, brick knitting factory, 60 by 60 ft., and a separate power house for James A. Shufelt. This refers to the new knit underwear mill to be located at Syracuse and Fourth streets, on which it is expected construction work will be started about April 1.

*North Carolina, Washington. J. T. Lewis' Tar River Hosiery Mill will start with 35 knitting machines and a 30-h. p. steam plant. He has secured the factory building formerly occupied by the Thelma Knitting Mill which is 2 stories high, 30 by 70 ft., and plans to have a daily capacity of 150 dozens of misses' ribbed hosiery.

*Pennsylvania, Auburn. Production will begin in the Walborn Knitting Mills March 1 when they will have completed the installation of 12 knitting machines and 14 sewing machines for making ladies' ribbed knit vests from 24s yarn. Claude D. Walborn and J. A. Walborn are the proprietors. J. W. Kirkpatrick, Jr., E. W. Parks and Lamson-King & Co., New York, will be the selling agents. It is expected the equipment will be increased after June 1.

Pennsylvania, Honesdale. A new corporation to be known as the Honesdale Knitting Mill is in process of formation. The capital stock will probably be $25,000.

Pennsylvania, Philadelphia. Two floors in the building at the northwest corner of Mascher St. and Lehigh Ave. have been leased by a new concern known as the Progressive Knitting Mills, which will be incorporated with capital stock of $25,000. This space will be occupied by 20 knitting machines and 20 sewing machines for manufacturing ladies', misses' and children's vests and union suits. The officers will be Ellwood C. Matlack, president; John Lindauer, Jr., secretary and treasurer, and Wesley Britton, superintendent and buyer. Mr. Britton was for about 18 years connected with E. Emmers & Co. of Royersford and under his management the new company plans to manufacture only the highest grades of goods of both plain and mercerized yarns. As their product becomes better known to the trade they expect to largely add to the initial equipment. A bright future seems to be assured for this concern.

Pennsylvania, Philadelphia. The Reis & Smith Manufacturing Co., who are now located at 141 N. 3d St., report that they are operating 7 knitters and 36 sewing machines by electric power on sweater coats and bathing suits. They are buying 3/20, 2/26, 2/20 and 2/18 worsted and 2/20 and 2/24 wool yarns, also piece goods for women's, and jersey cloth for men's bathing suits. M. Smith is the superintendent and buyer.

Pennsylvania, Philadelphia. A new knitting plant for the manufacture of fine gauge ladies' seamless hosiery, containing 30 or 40 knitters, will

be started up in this city by William Lauber, now connected with the Park Hosiery Mills of this city, and G. W. Smith, Jr., of Germantown. The machinery has been ordered and a location is now being looked for. The production of the plant will be sold direct.

*Pennsylvania, Reading. An old church building at Fifth Ave. and Franklin St. in West Reading has been secured by the Fehr Knitting Co. and is being remodeled for the manufacture of women's underwear. As noted previously, this company has capital stock of $10,000. L. W. Fehr is president; Ezra J. Moyer, treasurer, and W. C. Bitting, manager and buyer.

Pennsylvania, Shoemakersville. A new knitting plant for the manufacture of knit underwear for women will be started up in this town by a man named Wilson, formerly engaged in the hardware business, who has leased a portion of the two story brick mill used as a hosiery plant and will install six knitters.

*Wisconsin, Appleton. Several months ago it was reported that Herman Venth would establish a knitting mill in Appleton. Plans toward this end are progressing and about April 1 Mr. Venth and his associates will begin manufacturing under the name of the Telulah Knitting Mill with 2 flat knitting machines, 2 ribbers and 8 sewing machines on sweater coats and fancy knit goods. John Goodland, Jr., will be president, treasurer and buyer, and Mr. Venth will be superintendent of manufacturing. It is planned to dye and finish and to operate by electric power.

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**Enlargements and Improvements.**

Connecticut, Addison. It is reported the Glastonbury Knitting Co. has ordered an additional set of cards for No. 1 Mill.

New York, Athens. The Athens Knitting Co. will add the manufacture of sweaters to their present lines of men's ribbed underwear and union suits. New knitting machines are being installed.

New York, Brooklyn. John Spicer, manufacturer of bathing suits, sweater coats, etc., at 86 Woodbine St., is erecting a 3-story building, 25 by 50 ft., adjoining his present quarters which will be ready for occupancy February 15.

New York, Fulton. An additional building will be built in the spring by the W. H. Spanswick Mfg. Co. and 20 to 25 knitting machines and 20 sewing machines will be added to the present equipment. The site to be occupied by the new building will be donated to the company. The Textile Exchange, Inc., which was recently granted a charter, will buy and sell knit goods and machinery. Wm. H. Spanswick is interested in both concerns.

New York, Kinderhook. The Albany Knitting Co., of Albany, has leased a building in Kinderhook and installed a few machines. A number of knitters in this vicinity who have machines in their homes have been employed for some time.

*New York, New Hartford. Following the increase in the capital stock of the Olympian Knit Goods Co. from $60,000 to $150,000, an enlargement will be built which will provide for 6,000 feet of additional floor space. The rear of the mill, which is but 2 stories high, will be built up to 4 stories, making it the same height as the main part of the building. A separate office building also will be constructed. Work on these changes will be started about April 1.

New York, Watertown. According to report, as soon as weather permits the Shaughnessy Knitting Co. will build a new mill on East Moulton St., 3 stories high, 50 by 140 ft. The estimated expenditure is $50,000. The concern at present occupies quarters on the second floor of the Wise Bldg., and owing to a marked increase in business is forced to make this enlargement.

*Ohio, Cleveland. Work will soon be started on the large new mill at Euclid Ave. and East 61st St. which is to be occupied by N. J. Rich & Co. on its completion. It will be a concrete structure, 4 stories high, 360 by 100 ft., and will be completely equipped with sprinkler systems and other modern appliances including an emergency hospital, reading and rest rooms, dning rooms and shower baths. The equipment of N. J. Rich & Co. will be more than doubled when they move into this new building. The construction work will be done by the National Concrete Fire Proof Co., Cleveland. N. J. Rich & Co. manufacture eiderdowns, fleece linings, sweaters, sweater coats, golf vests and fancy knit goods.

Pennsylvania, Philadelphia. The Roxboro Hosiery Mills have recently purchased from J. W. Scott the 3-story factory building, 54 by 100 ft., at 2013-17 E. Arizona St., for a consideration of $10,000. The Roxboro Hosiery Mills, of which Maddock & Wolstencrodt are the proprietors, have been located in this building for some time past, and their increasing business compelled them to purchase the building in order that they might enlarge their plant. They are manufacturers of seamless cotton half hose, ladies' fine gauge hosiery and infants' stockings, which they sell direct through their offices in the Boure Building and at 256 Church St., N. Y.

*Pennsylvania, Pottstown. Otto Reim, proprietor of the Bramcote Dye Works, does not know as yet how many knitting machines will be installed in his new knitting department. 176 and 200-needle hosiery will be made.

*Tennessee, Knoxville. The Standard Knitting Mills have increased their capital stock to $300,000 to finance the extensive enlargements which have been under construction for several months, which give the company a total of 18,000 cotton spindles, 100 latch needle knitting machines and 250 sewing machines operated on men's cotton ribbed underwear and union suits. It is stated the enlargements will be completed within sixty days. J. T. Brownlee is general manager and buyer; E. E. McMillan, president, and H. Branner of the Third National Bank, is treasurer.

Tennessee, Maryville. Contract has been awarded by the Maryville Hosiery Mills for additional machinery which will be installed just as soon as it can be secured. This company was incorporated last September and took over the plant of the Watauga Hosiery Mills of Johnson City. R. D. Oliver controls the concern.

Utah, Ephraim. At a meeting of the stockholders of the Sanpete Knitting Works it was decided to erect a new building, work to be started as soon as the weather permits, and to increase the machinery equipment. A year ago the stockholders voted to enlarge, but it was later decided not to increase at that time. They make women's and children's knit underwear.

Wisconsin, West Bend. A branch of the National Knitting Co. of Milwaukee will be established here to increase the production. Reports have been current to the effect that the National Knitting Co. would remove from Milwaukee to West Bend. These are incorrect.

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**Mills Shutting Down.**

Pennsylvania, Philadelphia. The Leicester-Continental Mills at Lena and Armat Sts., Germantown, have been shut down and will not be started up again unless other parties can be secured to take them over. The plant contains 10 sets wool cards, 10,000 spindles, 200 knitters, and other machinery, for the manufacture of athletic goods, sweater coats, and other knitted fabrics, and woolen yarns.

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**Facts and Gossip.**

Georgia, Monticello. It is said to be probable that a new knitting mill will be established at Monticello, work on the enterprise to be started at an early date.

Illinois, Chicago. Kling Bros. & Co. have been granted a charter to manufacture and deal in clothing, with capital stock of $25,000. This concern operates as one of its departments a sweater knitting mill at 293 Fifth Ave.

*Illinois, Chicago. As suggested in the report of the incorporation of the Friedlander, Brady Knitting Mills, the new company will take over the business of Friedlander, Brady & Co., Congress and Green Sts., but the transfer has not as yet been made. It will probably occur within the next week or ten days. There will be no change in the business.

*Maine, Bangor. The Berlin Knitting Co., which suffered loss of between $6,000 and $8,000 by fire early in January, will resume manufacturing at once.

*Maine, Brunswick. It has been decided not to rebuild the plant of the Brunswick Knitting Mill which was destroyed by fire in November.

Massachusets, Lowell. At a meeting of the stockholders of the Middlesex Co. it was voted to accept the recommendation of the directors to reduce the capital stock of the company from $750,000 to $250,000, and then to increase it by the issue of $250,000 preferred stock. Hosiery machinery has already been installed in No. 1 Mill and will be started up shortly. Lawrence & Co. will act as selling agents, as previously noted.

Mississippi, Pascagoula. It is reported the Mismissippi Fish & Oyster Co. may install knitting machinery and are interested in taking up the matter with manufacturers of knitting mill equipment.

Missouri, Neosho. The family of Thos. Hainsworth would like to sell the Neosho Hosiery Mill The plant has been idle since the death of Mr. Hainsworth.

New York, Amsterdam. The Morris Mills are in operation again after a shutdown of three weeks due to the destruction of their dye house by fire.

*New York, Amsterdam. There will be no increase in the plant of the Chalmers Knitting Co. following the increase in the capital stock from $25,000 to $400,000, for as suggested in a previous report the increase was made to place the capital at a figure more representative of the investment. David W. Chalmers is president and buyer and John R. Blood is treasurer.

*New York, Brooklyn. Walter J. Vogt, previously reported as starting a knitted necktie department, has given up the plan owing to lack of room.

New York, Brooklyn. The Bushwick Knitting Mills have been incorporated with capital stock of $3,000 by Isador Feingold, 1,755 St. Johns Place, Mitchell Wofay, 127 Harrison Ave., and Jacob Litwin, 81 Tompkins Ave., Brooklyn.

*New York, Clinton. The Clinton Knitting Co. has resumed manufacturing after a shutdown for the installation of additional machinery and to allow other changes to give a greater output to be made.

New York, Ebenezer. The factory building located on the Mill Road is to be remodelled and equipped as a knitting plant. The parties interested are not known.

*New York, Kinderhook. Fifteen knitting machines are being operated on knit gloves in the local branch of the Albany Knitting Co. of Albany. Forty-five knitting machines are operated in Albany.

New York, Perry. Owing to the large amount of business done during the last few months, the Tempest Knitting Co. is considering employing two shifts of operatives. At the annual meeting the old officers were reelected and the matter of enlarging the plant and increasing its capacity was considered, although it is understood no decision was made. Men's and children's flat cotton underwear is made.

New York, Schenectady. A silk knitting concern making gloves and underwear may locate in Scotia if suitable conditions can be secured. The concern at present is employing 250 hands and desires a good labor supply and a building about 2 stories high, 50 by 150 ft. Walter H. Reed, sec-

retary of the Schenectady Board of Trade is interested and a committee has been appointed, consisting of President J. C. Perham, Geo. F. Morris and Harry Boroughs, to confer with the residents of Scotia and with the firm in an effort to bring them together.

New York, Utica. It has been decided to increase the capital stock of the Utica Knitting Co to $2,500,000 and to merge the Waiontha Textile Co. of Richfield Springs, the common stock of which is owned by the Utica Knitting Co., with the mills of that concern. The matter will be placed before the stockholders. The Waiontha Textile Co. is under the same management as the Utica Knitting Co.

*North Carolina, Burlington. The Murbola Hosiery Mill, Inc., will be dissolved, the machinery equipment having been taken over by the hosiery department of the Midway Improvement Co. and the building by the Burlington Dye Works.

*North Carolina, Lumberton. Robt. E. Lee and associates, previously reported interested in organizing a company to built and equip a hosiery mill here, are investigating with a view to determining details of the proposed plant.

*North Carolina, Vaughan. The Allgood Hosiery Mill, incorporated in January with capital stock of $12,000, succeeds the Vaughan-Parker Mills and will operate 30 knitting machines on men's and women's 176-needle hosiery. The small hosiery plant established in Henderson, North Carolina, a short time ago by Mr. Allgood, will be discontinued and the machinery moved to the Vaughan Mill. Mr. Allgood has been elected president, superintendent and buyer, and J. P. Vaughan, secretary and treasurer.

*Ohio, Ashtabula. There is no present prospect of the location of an underwear mill in Ashtabula, owing to insufficient capital. The matter was agitated by E. O. Boli, at one time general manager of the Mentor Knitting Mills Co. at Mentor, Ohio, and was favored by the Chamber of Commerce.

*Ohio, Cleveland. The Wovenright Knitting Co., which succeeded the Scharfeld-Norton Hosiery Co., as noted previously, has organized with J. F. Norton, president, and H. Selman, secretary and treasurer. The plant is located at 6302 Kinsman Road, Cleveland.

Ohio, Cleveland. Morris J. Wolf has been elected president and treasurer of the Keetch Knitting Co. and Wm. I. Keetch will fill the position of vice-president. M. E. Meisler will be secretary. The president and treasurer will have the management of the business and Mr. Keetch will give the greater part of his time to other interests.

Oklahoma, Frederick. The hosiery mill building which has been under construction for several months is practically completed. J. W. Blackwelder planned to manufacture men's, women's and children's hosiery in the building, but he advised some time ago that he had abandoned this project, so uses to which the mill will be put are not known.

Pennsylvania, Carbondale. The Carbondale Knitting Co. has been incorporated and the following officers elected. Max Frieder, president; E. W. Mills, vice-president; E. M. Peck, treasurer.

Pennsylvania, Danville. F. Q. Hartman has purchased the controlling interest in the Danville Knitting Mills Co., according to a report, and the plant will be closed for a few days to make changes.

*Pennsylvania, Honesdale. Nothing definite can be learned of the new Honesdale knitting mill project and it is probable this is merely a rumor. It was stated that a concern would be organized with capital stock of $20,000.

*Pennsylvania, Kane. A factory building has been secured by the Thissen Silk Mfg. Co., recently reported incorporated with capital stock of $20,000, and they are installing machinery for making silk gloves, linings, veilings, etc. There will be a dye house and the machinery will be operated by electric power. This concern bought the equipment of the Thissen Silk Fabric Co. of Fonda, New York, comprising 13 looms. Jacob Thissen is president, superintendent and buyer and R. A. Hill is treasurer.

*Pennsylvania, Nanticoke. Arrangements have been completed to lease the building occupied by the Black Diamond Knitting Mills Co. to a cigar manufacturing concern.

Pennsylvania, Philadelphia. Louis Engle & Bro., manufacturers of sweater coats under the name of the Lebro Knitting Mills, with 10 flat knitters, 14 round frames and 30 sewing machines, have removed their plant from their old location at 919 Commerce St., to their new building at 8th and Wallace Sts.

Pennsylvania, Pottstown. It is reported that J. D. Clemons, proprietor of the Gold Seal Knitting Mill, has sold the business to S. G. Davenport and that it will be continued under the same name with W. Y. Sands, president, and S. G. Davenport, vice-president and general manager.

*Pennsylvania, Reading. There is absolutely no truth in the report that the plant of Light Bros. Hosiery Co. has been taken over by Jos. Ellis & Co. Light Bros. Hosiery Co. recently moved here from Bernharts, Pennsylvania, and is located at 152 Court St.

Pennsylvania, Spring Mount. It is reported a hosiery mill to employ 50 hands will be established here by a Philadelphia firm provided enough hands can be secured to operate such a plant.

Tennessee, Nashville. It is probable that the Nashville Hosiery Mills will shortly be reorganized. The plant is shut down at the present time. 300 latch needle knitting machines were operated on children's ribbed cotton hosiery.

Utah, Brigham. John Anderson, proprietor of the Brigham City Knitting Factory, is reported to have removed his plant from Brigham to Salt Lake City.

Virginia, Norfolk. The Northside Knitting Mills have closed down temporarily for repairs. The plant is on 41st St.

# *Dyeing, Bleaching, Printing, Etc.*

## IMPERFECTIONS IN DYED COTTON CLOTH.

*Dr. LOUIS J. MATOS.*

The continued production of dyed cotton piece goods free from blemishes is a matter of no certainty, there are so many conditions that arise in the ordinary course of preparation and dyeing beyond immediate control that no one can forsee just what the final results will be.

The cause of much unevenness can be frequently traced to the treatment in the kiers, to the local deposit of lime, and to the presence of iron, which even though in very small quantities causes shaded streaks or areas. Local over-bleaching is another source of irregularity of shade, and is one of the most difficult to remedy.

Stains are sometimes apparent in finished goods which are not visible before finishing, and which are frequently due to the presence of rosin from the soap used. Contrary to many repeated statements made otherwise, it is not often the case that unevenness is due directly to the dyeing, for it is a well known fact that a properly bleached, soured, and washed piece of cloth will take the dye evenly.

It often happens that cotton cloths dyed in a jigger or padding machine shows for many yards at a time a heavier shade at and near the selvages than at the center, and again pieces are met with a slight shaded area along the selvage while the deepest shade runs along the middle. Such defects are strictly mechanical, and the cause is usually found to be in the poor adjustment of the rollers between which the cloth passes during dyeing. It is not a very easy matter to put these rollers in correct adjustment, especially in old machines. The actual cause of the trouble may be found either in loose journals or loosely fitting boxes, which allows too much play of the rollers, thus preventing uneven pressure of one roller on the other. Both rollers should be in exact vertical alignment so that the pressure is evenly distributed over the full width of the piece. Where the top squeeze roller is out of alignment for even one degree, there will be great pressure in the center of the piece with very little at the edges. While it is proper to have machines working freely, "wobbly machines" will not turn out good work.

A frequent cause of trouble is defective singeing, too great a tension or too heavy a drag on one side will produce over burning and which will be very prominent when the goods are dyed with basic or direct colors. Over singeing is difficult to correct in goods not to be bleached. In corduroys, owing to the greater or lesser prominence of the ribs, its presence is not as pronounced as in plain goods. Where goods are bleached the scorched effect is overcome.

The greatest cause of defective pieces is due to the incomplete removal of fatty and waxy matters during bleaching. The presence of such matters prevents the uniform taking up of the color from the dye bath, they acting as a resist on the cotton, and consequently lighter shades are noticed. The actual cause is due to irregular circulation of the kier liquors, and too close attention cannot be given when loading.

The presence of lime in the cloth seems to protect the cotton in much the same manner. After bleaching with chloride of lime and passing the bleached cloth through a weak sour for the purpose of decomposing the last traces of the bleach truly does the work, but at the same time there is formed and deposited upon the cloth some sulphate of lime which is difficult of removal and which acts as a color repellant. As a rule nearly all bleachers use oil of vitriol as the sour, but it is much better to use muriatic acid on account of the soluble lime salts which it forms and which are easily washed out, leaving no residue on the goods, a most important consideration.

Thousands of pieces of cotton goods are dyed with the direct colors which sometimes

show shaded areas. When such pieces are critically inspected and found to be free from sulphate of lime as well as waxy or oily matters, the direct conclusion is that the goods were "burned" during bleaching, that is, the action of the bleach was so strong or prolonged that the cellulose of the cotton was altered into oxy-cellulose, and such portions having less affinity for direct colors than normal cotton, although having a stronger affinity for the basic colors, especially for methylene blue which in a very weak solution is constantly used as a reagent to detect the presence of oxy-cellulose in cotton fabrics. There are many well known instances where distinct colored spots on cotton cloth have been regarded as being due to undissolved dye particles, but which were found to be the result of fine particles of bleach attaching themselves to the cloth, and "burning" the goods at the point of contact.

As a general rule stains which show during dyeing may be laid to imperfect bleaching, while shaded pieces are the result of imperfect working of the dyeing machine, or to having allowed the dyed goods to remain around the dye house in a wet state. It should be an inflexible rule in all cotton piece goods dye houses, that as soon as the pieces are out of the dye liquor, washed and whizzed, they should be sent to the driers without delay.

The sulphur colors play a very important part in the dyeing of nearly all classes of cotton fabrics, and deservedly so for the broad reason that they offer no difficulties whatever whether dyeing bleached or unbleached material. The one point to guard against is to keep metallic copper, brass or bronze away from the dye bath and out of contact of the dyed pieces. Copper or alloys of copper act injuriously on the colors. In dyeing very heavy shades of the sulphur colors, as well as blacks, there is frequently observed after dyeing a grey film. This is due to the presence of a slight amount of the dye solution remaining in the goods, which, while exposed to the air, causes a separation of a trace of free sulphur which attaches itself to the cloth. If the cloth is immediately and well washed after dyeing, this free sulphur will not be seen. When it is present, the only remedy is to run the goods through a weak bath of caustic soda and sodium sulphide and afterwards washing out thoroughly.

A few chemical tests adapted to cotton cloth should be thoroughly understood and the simple apparatus and chemicals for carrying them out should always be ready. The commonest test is that for the presence or absence of acids, and the use of blue or red litmus paper is too well known to require mention.

Iron is best detected by moistening a suspected portion of the cloth with dilute (pure) hydrochloric acid, and afterwards applying one or two drops of a weak solution of yellow prussiate of potash. If iron is present, a blue coloration forms which is conclusive.

Lime is not so easy to detect, but if a clipping of the cloth is boiled for several minutes in a test tube with distilled water acidulated with 2 or 3 drops of pure hydrochloric acid, then filtered, the clear solution made alkaline with ammonia, and afterwards add 2 or 3 drops of a 5 per cent. solution of oxalate of ammonia, if a cloudiness appears it is conclusive of the presence of lime.

It is desirable to determine the amount of dressing on a sample of cloth. Weigh accurately 100 grains of cloth, and wash for a few minutes in water, then boil it for 1 hour in a pint of distilled water, then remove the cloth, and boil again in a pint of water containing 1 per cent. of hydrochloric acid, which effects the removal of all mineral matters in the cloth. Afterwards rinse well, dry and weigh. To this weight add 9 per cent. to allow for the natural moisture of the cotton and natural mineral matter. The difference from the original weight indicates the loss due to the dressing.

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The cotton manufactures imported into France during 1909 were valued at $13,624,804 and those exported at $64,619,295.

In the consumption of silk the United States ranks next to China, utilizing more than one-fifth of the raw silk product of the world.

## A MERCERIZING MACHINE.

A Swiss machine for mercerizing cloth has recently been patented in this country. The inventor states that it produces a high luster with a minimum amount of damage to the goods. He describes the process as carried on with the new machine, as follows: It has been proposed to mercerize textile fabrics by washing the fabric previously impregnated with alkali lye without the employment of means for preventing the shrinkage of the fabric, and by stretching the fabric transversely during the washing process. This mercerizing process has, however, not been employed up to the present and no apparatus is known which would be capable of performing it in a satisfactory way, because when this process is performed with the usual stretching devices, such as tentering chains, tentering nippers and the like, the fabric suffers so much damage, in consequence of the forcible transverse stretching, that the process is not applicable for light fabrics.

It has now been found that this damaging effect upon the goods in the mercerizing process arises from the fact that the fabric impregnated with alkali lye possesses a variable and so great an extensibility during the washing process that such a forcible transverse stretching, as has been produced by the means hitherto tried in this process, is not at all necessary, but that it is sufficient to lead the previously impregnated tissue or fabric, during the washing operation, over a certain number of arched rotatable rollers. These rollers, as the result of their rotation under the pull of the fabric, push the shrunken fabric without undue strain from the middle toward the edges and thus bring it back to its original width without exercising a forcible action.

Fig. 1 is a view of the apparatus as a whole; Fig. 2 shows one of the stretching rollers; Fig. 3, two sections of the roller on a larger scale.

The fabric, a, Fig. 1, passes through the trough, b, which is filled with soda lye and surrounded by a cooling jacket, c. The fabric is first squeezed at d, then passes again through the lye in the trough, b, and is squeezed under powerful pressure by the

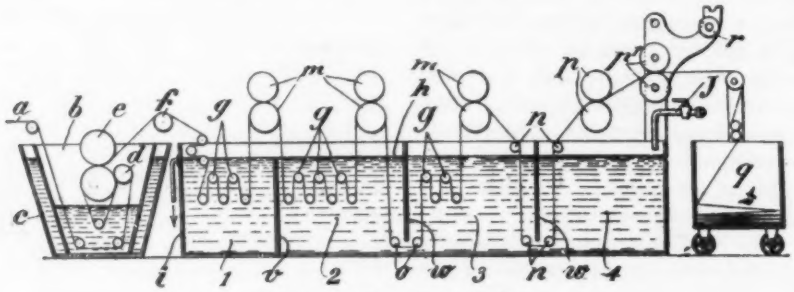


FIG. 1. A MERCERIZING MACHINE.

roller, e. It then travels over a guide roller, f, and is afterward passed over several groups of arched stretching rollers, g, disposed alternately at different heights and displaced with relation to one another, said rollers being mounted parallel to each other and arranged in groups. These rollers are arranged either wholly or in part within a washing bath, h, which serves to wash the fabric at the same time.

On leaving each group of stretching rollers, g, the fabric is passed through a pair of squeezing rollers, m, and if necessary is also led by guide rollers, o, between the second and third groups of tentering rollers. Each of the stretching rollers, g, consists of a number of roller sections, Figs. 2 and 3, slipped over an arched shaft and provided with annular ribs. They are also coupled so that they revolve together on their shaft under the pull of the fabric. In this way, owing to the divergent position of their roller sections relatively to the fabric, the stretching rollers cause the fabric to stretch laterally, uniformly on the whole width of the fab-

ric, since the greater the distance of the roller sections from the longitudinal middle line of the web, and therefore the more oblique their rotation to the longitudinal direction of the web, the more is the latter pushed from the middle line toward the edges and therefore stretched.

Since this lateral stretching is effected in the washing bath, h, and therefore during the washing process, at a particular stage of which the fabric exhibits its greatest extensibility, it is effected very easily and quickly

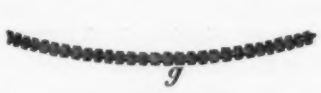


FIG. 2.

FIG. 3.

and with little injury to the fabric. The number of the stretching rollers varies with the nature of the fabric and the degree of stretching required. The larger the total surface of contact between the fabric and the stretching rollers, the more powerful is the effect. The greater the degree to which the fabric is to be stretched the larger the support it should find on the roller elements of the stretching rollers, and it is advisable to use a relatively large number of stretching rollers. The washing liquid employed for washing the fabric while being stretched in this way is preferably warm, and the actual stretching rollers, g, in the bath are submerged in such a manner that the fabric does not emerge from the bath at or for the greater part of the time, during which the actual stretching operation is proceeding. After leaving the last pair of squeezing rollers, m, the fabric is returned to the washing bath for a final washing, being led over guide rollers, n, in the tank. Thence it passes to the pairs of squeezing rollers, p and $p^1$, and is finally delivered into q, or rolled up at r.

In the drawing, the liquid used for washing the fabric is contained in a vat, i, divided by partitions, v, w, that extend near to the bottom, to enable the fabric to be washed by stages; or a number of separate tanks or vats can also be used for the same purpose; or the vat may be omitted entirely and its place taken by a number of spraying pipes discharging powerful jets of water against the fabric passing over the stretching rollers, g. In all cases it is important that the fabric impregnated with soda lye should be subjected to the action of water from the commencement of its transition to the parallel mounted arched stretching rollers, or immediately thereafter, and also during the whole period of its course over the same, that is to say throughout the entire stretching process; the lateral stretching will thus be effected simultaneously with the washing, and under more favorable conditions for protecting the fabric from injury. The compartment, 4, of the vat, i, from whence the fabric passes to the pair of squeezing rollers, p, is fed with pure water by the inlet tube, j, while the adjacent compartment, 3, containing the third set of stretching rollers, is fed with dilute lye from 4, compartment, 2, containing the second group of stretching rollers being fed with less dilute lye from 3 and compartment 1, containing the first group of stretching rollers being fed with still less dilute lye from 2. By means of this graduated or methodical system of washing the alkali impregnated fabric by stages on the counter current principle, an economical recovery of the mercerizing lye is insured.

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### Bleaching of Woolen and Worsted Yarns.

*Editor Textile World Record:*

Please give us a formula for bleaching woolen and worsted yarns by the sulphite of soda process.
Willis (1268).

The following data is based upon experience gained by several years' practice with the process on a large scale. The chemical used is commercial sodium bisulphite which can be procured in either solid or liquid form, the former being specially desirable where freights are an item. If the solid product is used it must be dissolved in water to make a solution standing at 75° Tw. For a bleaching bath of 1,000 gallons' capacity add 25 gallons of the bisulphite solution, or if it is more convenient it may be weighed, in which case 285 pounds of the stock solution will be required. Then add 2 gallons of commercial oil of vitriol, mix thoroughly and

immerse the yarn, keeping it under with a wooden lattice. A 1,000 gallon vat should hold comfortably 300 to 350 pounds of yarn. The yarn before bleaching should be previously well scoured. After being immersed in the bleach solution, give several turns and then allow to remain several hours, but turning at intervals until the bleach is satisfactory, then lift to drain back into the bleach bath, and without rinsing pass through a cold flush bath containing three quarts of oil of vitriol per 1,000 gallons. The final acid treatment effects the complete destruction of any remaining traces of bisulphite in the yarn, lift, wash well, to remove traces of acid and dry the yarn at not too high a temperature nor too rapidly.

No sulphur bleaching process will produce an absolute white upon wool, but well bleached wool may be greatly improved in brilliancy by adding to the last rinsing bath, a trace of methyl violet 6B. In some plants washing is done in the whizzer, in which case the "white tinting" must be done in a separate bath.

Thousand gallon tanks are best adapted for bisulphite bleaching than smaller tanks on account of the greater economy due to handling larger quantities.

Before bleaching the yarn should be thoroughly scoured and enter the bleach bath free from all oils, grease and soap, the presence of any of which will prevent an even bleaching, while any of these impurities are still further acted upon by the sulphurous acid producing discoloring compounds. Yarns to be bleached should never be scoured with soap that contains rosin, for the reason that it is very difficult to remove such a soap from the yarn, and besides a decided odor frequently remains which is difficult to remove.

Where bisulphite bleaching is to be a fixture of a mill a properly equipped bleach house should be erected and containing storage tanks for stock bleaching solutions, the bleaching tanks proper, yarn washing machines, whizzers, and an ample supply of clean water. With such a plant bisulphite bleaching becomes pure routine work and when in charge of a fairly intelligent man but few if any defective batches will be turned out. Dumfries.

## CLOTH FINISHING.

*BY J. R. HIRST.*

(Before the Huddersfield Technical College.)

My knowledge is confined to the finishing of fine worsteds and woolens of high class quality. On low woolens and worsteds I have had no experience, therefore I shall confine myself to that which I have had practical experience in for the last 30 years, gained at Messrs. Martin, Sons & Co., and at Zetland Mills, firms which I think carry a good name for first-class goods.

Cloth finishing is always changing. It is like fashions, nay, it goes with the fashions, and what you have done one season won't do the next. The way our grandfathers finished cloth won't do at all now. Finishing is entirely different from what it was in their days. I have heard old men say that the bottom room at Zetland Mills at one time had two rows of teazle gigs from one end of the room to the other, now there is one, and that not much used, besides a Mozer raising machine. I remember an uncle of mine, who was manager at a woolen mill, telling me they used to make a cloth which took a week to scour and mill. They used to run them a whole week in the stocks. Now it is an exception if we run them two hours. Such is the revolution in cloth finishing within thirty years. There are a few firms who make similar goods yet, but one seldom sees these goods. Finishers wanted two to three months to get a piece through. Now there are firms in this district who will take an order by the morning's post and have the piece woven, finished and sent away the same week. We have today many different cloths, and the same cloth got up in various ways, so as to have a choice of finish. Some are made close cut, some serge, others demi-serge, all being the same cloth, but finished in different ways to please customers.

I cannot say to you that the proper way to finish a worsted cloth is this, or a woolen is that, because next year it may be wrong. It will want finishing another way. The

goods last year have got on the market, tailors have made them up, and people have worn them, they have been tested; this man has found some fault with his coat, he has had it on a few times, and finds it has begun to wear rough, the bits stick, and he is constantly whisking or brushing it. As it gets rougher, he complains to his tailor, the tailor to the merchant, he in turn to the manufacturer. The maker says he must try and alter this, so we have to alter our way of finishing them next season. Another complaint is that the cloth does not tailor well, it shrinks or cockles under the tailor's hot iron. Accordingly the finish has to be altered, and so the thing goes on constantly changing like the fashions. Browns are all the go one season, blues the next, something else the next, no going on with the old things in the old way. So the brain of the finisher is taxed as well as the designer.

The chief object in finishing is to work to the plan of the designer, and bring out to the best possible advantage his ideas as to what the cloth should be, and at the same time to get the cloth to look, handle, and be at its best without deteriorating the wearing qualities, to produce something that will wear well, handle nice, soft and supple, something that will attract the eye, please the touch of the buyer, and satisfy the wearer. If we can do that, we have done a good share towards having a steady trade. To get this we must start with the weaving, because if the piece is not woven well it will not look well over the perch after finishing, also all pieces want knotting and mending well in the grease. Every bit of mending wants doing in the grease, and every knot wants either taking off or lifting up. Bits of thick, uneven yarn and thick picks want taking out and fresh threads putting in, as all know who have had experience, that knots lifted and thick bunches if taken out after scouring leave a hollow place. If you rescour the piece the other threads won't always go to the right place, and the bit put in will run slack and show an imperfection, especially if it is a hand-made piece, hence you get a fault which probably means a quarter of a yard damage.

Next comes scouring, which is an important part of finishing. We will take a fancy worsted, clear cut, say a 22-oz. cloth. The chief thing to bear in mind is to get the piece clean without in anyway injuring the colors, or milling the cloth too much. So we must be careful and not use too strong scouring liquor, and not get it too warm. When we think we have it clean, swill the scour away and give a soap lather, just warm, and allow it to run a while. It will feed and soften and give the piece a better handle. Give plenty of clean water in swilling off. We might use a little ammonia, which will help to get the soap out and brighten the colors. The use of ammonia will depend on the colors. In scouring take care to have the pieces crossed; by so doing you get the position of the pieces changed and prevent them from running in the same creases. Also open the piece out occasionally when running to give it a fresh position, and open it right to the lists, as it not only gives it a fresh position, but at the same time allows the liquor to get to the piece more freely.

After it has been taken off the scouring machine it goes to the hydro-extractor, then to the tenter. In tentering the slower a piece is dried the better, so as to imitate outdoor drying as much as possible. It also allows the threads and wool fibers to right themselves better. Don't stretch too hard, for in scouring we have milled the piece somewhat, caused the threads to swell, and loosened the wool fibers. These fibers have curled up and interlocked themselves with other fibers, thereby strengthening the cloth. If stretched unduly, the fibers are torn apart or broken. If you get the cloth too hot the wool is scorched, and there is no bringing it back to its original condition. Hence we get a dry "hask" piece with the quality and handle spoiled. After drying, it goes to the menders, who look for knots and any mending which has been missed. Then it is steamed or damped to bring it back again to its natural condition, and relieve the tension which it has been subjected to in tentering. Then it requires setting up for cutting. The object of setting up is to lift up the loose, tangled wool fibers so that the cutting ma-

chine can cut them off and leave a clear, clean face. There are different machines for setting up. Some use the old teazle gig; some, a double brushing machine with brushes running in opposite directions; others, emery rollers or Mozer raising machine. The teazle gig will comb the wool out and lay it straight, but it always leaves a slight draw when cut and that is not wanted, whereas a double brush with brushes running opposite ways cannot. If the emery roller is used, change the piece the opposite end up, every round. When the piece has had one cut, turn it the opposite end up for the next, so as to get both sides alike. Repeat the setting up and cutting until the piece is as clear and bright as you desire.

If you want to improve the handle and give the cloth some luster, blow it by winding it on to a roller sandwiched with a wrapper, or without, as it suits your taste, and steam it. If you want the best results, allow it to cool a few hours after steaming, then turn it and allow to stand over night on roller. There are several machines on the market for producing luster. There is the old-fashioned way of winding the piece on a perforated roller, lifting the piece out of the machine and putting it on a steam kettle. Machines are built for steaming without the necessity of lifting the rollers. Then there is the Klug machine, which is different again. In this process you wind the piece on to a roller as in the other machines, then put it into a cylinder or oven which has been previously heated. It is then made tight, the air is drawn out by means of a pump, thus leaving a vacuum. Steam is blown into the hot cylinder, the pump set going again, drawing the steam through the piece from the outside and through the roller. It is then taken out and put on to the exhaust pump which draws cold air through, thus cooling the piece quickly. Some finishers use the crabbing machine for the same purpose. The piece is wound on to a wood roller, which runs in a wooden trough filled with hot water, with an iron roller on the top, with a lever and weights attached to regulate the weight and tension as you desire. After running a while, it is rewound on to another roller similarly placed, and some have a third. It is lastly wound tightly on to another wood roller, lifted out, and allowed to cool. In this process you get the piece pulled and stretched well, and get all the creases out. When cool, swill again in an open washing machine. This will allow some of the length to creep back. Then tenter, steam, run through cutting machine. damp and press.

There are also several ways of pressing. There is a rotary press, which I suppose imitates the ironing of linen. Instead of the iron working over the linen, the piece is pressed over the hot iron with a heavy pressure on, which gives it a smooth, glossy appearance. There is the plate press, which presses the piece between two hot plates with press-paper between. Then there is the old hydraulic press, where the piece is rigged up and press-paper put between each fold, either warm or cold, then put into the press with hot plates put between, and pressed as hard as the cloth requires. Turn in a few hours, then allow to stay over night, longer if possible,—the longer the better. If it has too much glaze on, steam and cramp, or put into cold papers and repress.

We will suppose the next piece to be finished is a white for serge finish to dye black. Have all the knotting and mending necessary done in the grease. If it is not done so, and any long ends left out or thick threads left in, it will probably mean a damage when finished. Fancies I consider the easiest to finish, but when we come to serges of different qualities and different styles of finish we have to use our brains and employ other methods to get different results. You may have twenty different plans or designs in the same cloth, and they will nearly all require separate treatment. Some plans will cover sufficient with just scouring; another plan will want milling, for as you who have had practical experience will know, you cannot put a range of patterns of the same cloth of different designs, say two or three sizes of twills, hopsacks, barather, feather, and other fancy plans, into a milling machine, and give them all the same time. If you did, instead of having a nice range of

designs in the same cloth, you would have so many different finishes in the same cloth, all showing dissimilar. Then you may have pieces which will scarcely stand the process of scouring and dyeing. These must be scoured quickly, and dyed and washed quickly.

In all cases we must insist on having pieces scoured clean before milling, or otherwise they will not mill so well. Milling will depend on the quality of the piece and finish required.

(To be continued.)

# Dye Recipes

**The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.**

Recipe No. 33.

### Blue on Chrome Mordanted Worsted Yarn.

Alizarine Blue C P R on 100 lbs. Chrome Mordanted worsted yarn. First mordant the material in a bath made up with

3 lbs. Potassium Bichromate,
3 lbs. Tartar,

entering at ordinary temperature, bringing to a boil slowly, and mordanting at a boil for 1 1/2 hours.

Then dye in a bath made up with

4 lbs. Alizarine Blue C P R.
(C. Bischoff & Co., 451 Washington St., N. Y.)
1 lb. Acetic Acid.

Enter at 120° F., bring slowly to a boil and dye at a boil for 3/4 of an hour. Then add

5 lbs. Acetic Acid,

and boil for 1/2 hour longer.

Alizarine Blue C P R possesses remarkable fastness to sunlight, even in light shades, and is also fast to fulling.

Recipe No. 34.

### Scarlet on Cotton Yarn.

Naphtamine Fast Scarlet 4 B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Naphtamine Fast Scarlet 4 B.
(Kalle & Co., 530 Canal St., N. Y.)
30 lbs. Glauber's Salt.

Enter at 180° F., and dye at a boil for one hour.

Naphtamine Fast Scarlet 4 B for a direct cotton color possesses excellent fastness to light and acids.

Recipe No. 35.

### Blue on Worsted Yarn.

Anthracyl Chrome Blue 2 R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthracyl Chrome Blue 2 R.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
10 lbs. Acetic Acid.

Enter at 120° F., raise to a boil in 3/4 of an hour. Then add

10 lbs. Acetic Acid,

and boil for 1/2 hour longer.

When the bath is exhausted add

1½ lbs. Potassium Bichromate,

and continue the boiling for 3/4 of an hour longer.

Anthracyl Chrome Blue 2 R will be found to possess the usual fastness of the after-chrome colors.

Recipe No. 36.

### Green on Worsted Yarn.

Acid Green G G X on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Green G G X.
(Innis, Speiden & Co., 46 Cliff St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 160° F., bring to a boil, and dye at a boil for 1 hour, or until the dye bath is exhausted.

Acid Green G G X possesses great brilliancy, and will be found valuable for the ordinary requirements of an acid dyestuff.

Recipe No. 37.

### Blue on Cotton Yarn.

Triazol Sky Blue F F on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Triazol Sky Blue F F.
(Geisenheimer & Co., 189 Front St., N. Y.)
25 lbs. Common Salt.
1 lb. Soda Ash.

Triazol Sky Blue F F produces a bright blue, and possesses the characteristic properties of the direct cotton colors.

Recipe No. 38.

**Brown on Union Piece Goods.**

12 ozs. Tetrazo Chlorine Orange R.
1¼ lbs. Tetrazo Chlorine Yellow G.
2 ozs. Tetrazo Fast Blue 2 B.
1¼ ozs. Alizarine Yellow R Conc.
(American Dyewood Co., 115 High St., Boston, Mass.)
20 lbs. Common Salt.

Make up the dye bath with the requisite amount of color. The quantity of water used in dyeing should not exceed 3 to 4 gallons per pound of goods. Run in the goods at 140° to 150° F., raise to a boil in 15 or 20 minutes, and boil 1/2 hour or to shade.

The above dyeing represents a line of dyestuffs specially adapted for producing on union fabrics fashionable shades of extreme fastness to light.

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Recipe No. 39.

**Blue on Chrome Mordanted Worsted Yarn.**

Alizarine Blue C P R R on 100 lbs. Chrome Mordanted worsted yarn. First mordant the material in a bath made up with

3 lbs. Potassium Bichromate,
3 lbs. Tartar,

entering at ordinary temperature, bringing slowly to a boil, and mordanting at a boil for 1 1/2 hours.

Then dye in a bath made up with

4 lbs. Alizarine Blue C P R R.
(C. Bischoff & Co., 451 Washington St., N. Y.)
1 lb. Acetic Acid.

Enter at 120° F., bring slowly to a boil and dye at a boil for 3/4 of an hour. Then add

5 lbs. Acetic Acid,

and boil for 1/2 hour longer.

Alizarine Blue C P R R possesses remarkable fastness to sunlight, even in light shades, and is also fast to fulling.

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Recipe No. 40.

**Scarlet on Cotton Yarn.**

Indanthrene Scarlet G on 100 lbs. cotton yarn. Prepare the dye bath with

20 lbs. Indanthrene Scarlet G.
(Badische Co., 128 Duane St., N. Y.)
2½ gals. 77° Tw. Caustic Soda Solution.
5 lbs. Hydrosulphite Conc. B A S F Powder.

and approximately

200 gals. Water.

To this water should be added,

1 to 2 lbs. Soda Ash.

The water should be heated to 140° F., and then the stated quantity of caustic soda added. The hydrosulphite is then added slowly, with constant stirring. Finally the dyestuff is made into a thin paste with 5 to 10 times its weight of hot water, and passed into the bath through a fine sieve. The bath is then stirred until the dyestuff is completely dissolved. Solution will be recognized by the deep violet color of the dye bath. The yarn is worked in this bath for one hour at a temperature of 140° F., and then rinsed in a bath containing

3 ozs. Hydrosulphite Conc. B A S F Pow.
200 gals. of Water,

It is then soured in a bath containing

5 lbs. Sulphuric Acid
200 gals. of Water.

this latter bath being used to more quickly remove the caustic alkali. It is then soaped 1/2 hour at a boil.

Indanthrene Scarlet G possesses very good fastness to washing and milling, light, chlorine and cross dyeing.

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Recipe No. 41.

**Violet on Union Piece Goods.**

Tetrazo Colors on 100 lbs. of goods. Prepare the dye bath with

1 lb., 9 oz. Tetrazo Fast Blue 2 B.
6 oz. Tetrazo Fast Bordeaux 3 R.
7½ ozs. Brilliant Alizarine Red L A.
1 oz. Alizarine Red 5 B U.
(American Dyewood Co., 115 High St., Boston, Mass.)

Make up the dye bath with the requisite amount of color and 20 lbs. Common Salt. Run in the goods at 140° to 150° F., raise to a boil in 15 to 20 minutes and boil 1/2 hour or to shade. The quantity of water used in dyeing should not exceed 3 to 4 gallons per pound of goods.

The above dyeing represents a line of dyestuffs specially adapted for producing on union fabrics fashionable shades of extreme fastness to light.

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Recipe No. 42.

**Black on Worsted Yarn.**

Nerol T L on 100 lbs. worsted yarn. Prepare the dye bath with

20 lbs. Glauber's Salt.

6 lbs. Acetic Acid.
2 lbs. Formic Acid.

Boil up the bath for a few minutes, then add

6 lbs. Nerol T L.
(Berlin Aniline Works, 213 Water St., N. Y.)

previously dissolved. Enter material at 180° F., bring to a boil in about 15 minutes, and boil until bath is completely exhausted.

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Recipe No. 43.

**Yellow on Worsted Yarn.**

Milling Yellow 85 on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Milling Yellow 85.
(F. E. Atteaux & Co., 174 Purchase St., Boston, Mass.)
10 lbs. Glauber's Salt.
6 lbs. Acetic Acid.

Enter the yarn at 120° F., raise slowly to a boil, and dye at a boil for 3/4 of an hour. Then add

4 lbs. Acetic Acid

and boil for 1/2 hour longer. Then add

1 lb. Potassium Bichromate

and continue the boiling for 3/4 of an hour.

Milling Yellow 85 has high coloring power and possesses good fastness to scouring and milling.

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Recipe No. 44.

**Brown on Worsted Yarn.**

Anthra Cyanine Brown G L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthra Cyanine Brown G L.
(Farbenfabriken Co., 66 Lafayette St., N. Y.)
15 lbs. Glauber's Salt.
5 lbs. Sulphuric Acid.

Enter at 140° F., and dye at a boil for 1 hour.

Anthra Cyanine Brown G L is easily soluble and penetrates well, possesses very good fastness to light, and good fastness to alkalies, stoving and steaming. It is valuable for the dyeing of ladies' dress material.

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Recipe No. 45.

**Blue on Cotton Yarn.**

Immedial Indogene G C L on 100 lbs. cotton yarn. Prepare the dye bath with

16 lbs. Immedial Indogene G C L.
(Cassella Color Co., 182 Front St., N. Y.)
16 lbs. Glucose.
40 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
40 lbs. Glauber's Salt.

Enter at ordinary temperature, raise to 140° F., and dye at this temperature for 1 hour.

Immedial Indogene G C L possesses excellent fastness to washing and light, and dyes level.

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Recipe No. 46.

**Red on Worsted Yarn.**

Phenylene Fast Red 5 B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Phenylene Fast Red 5 B.
(W. F. Sykes & Co., 85 Water St., N. Y.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at 140° F., and dye at a boil for 1 hour.

Phenylene Fast Red 5 B possesses very good fastness to light and washing, and may be used to advantage with other colors of this type for the production of compound shades.

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Recipe No. 47.

**Blue on Worsted Yarn.**

Anthracene Chrome Blue B S T on 100 lbs Chrome Mordanted worsted yarn. First mordant the material in a bath made up with

3 lbs. Potassium Bichromate,
2½ lbs. Tartar,

Working at a boil for 1 1/2 hours. Rinse and dye in a bath made up with

3 lbs. Anthracene Chrome Blue B S T.
(Cassella Color Co., 182 Front St., N. Y.)
4 lbs. Acetic Acid.

Enter the material in the luke warm bath, raise to the boil in 1 hour, and continue the boiling for about 1 1/2 hours. After boiling for from 3/4 to 1 hour add 3 to 4 lbs. acetic acid to exhaust the bath.

Anthracene Chrome Blue B S T possesses very good fastness to light, washing, acids, alkalies and steaming and is especially desirable for the production of fast blue shades on piece goods.

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Recipe No. 48.

**Pink on Cotton Yarn.**

Boma Pink on 100 lbs. cotton yarn. Prepare the dye bath with

¼ lb. Boma Pink.
(E. M. Thayer & Co., 411 Atlantic Ave., Boston, Mass.)
10 lbs. Common Salt.

Enter at 180° F., and dye at a boil for 1 hour.

Boma Pink possesses the usual properties of the direct cotton colors and is particularly useful for self-shades. Its coloring power will be found to be comparatively high.

# *New Machinery and Processes*

**This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.**

**Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.**

**We invite machine builders and others to send us such information for this department.**

**Pipe Loading Machine.** The Jordan Machine Co., 5 Factory St., Cohoes, N. Y. A pipe loading machine for roll turner or horizontal dryer. A description appears in this issue.

**"American" Underwear Press.** The American Laundry Machinery Co., 132 West 27th St., New York, are building the "American" underwear press for underwear and other knit goods. A description appears in this issue.

**Double Winder.** Lowell Machine Shop, Lowell, Mass., are putting on the market a 1911 model of their well known doubling winder. A description of the winder will be found in this issue.

**Printing Pile Fabrics.** C. G. Haubold, Jr., Chemnitz, Germany. An improved perrotine printing machine for pile fabrics. The design is in relief on flat plates while the ground is cut away. This leaves the ground part of the fabric untouched, which is very desirable in printing pile fabrics. The blocks rest on the cloth for a short time, thus imitating hand printing.

**Knitting Machine.** George Blackburn & Sons, Ltd., Nottingham, England. An improved circular latch needle knitting machine.

**Automatic Loom.** William Dickinson & Sons, Blackburn, England. An improved automatic bobbin changing loom which has recently been put in operation in Blackburn, England.

**Pneumatic Cloth Feed.** Daniel Foxwell & Son, Manchester, England. A machine for guiding and feeding cloth to finishing machines. The selvages of the cloth are kept in position by guides provided with pneumatic pressure.

**Seamless Hosiery.** G. Stibbe & Co., Leicester, England. An improved automatic machine for knitting seamless hosiery.

**Calico Printing.** J. T. Sutcliffe, Sabden, England. An improved method of mounting doctor blades on printing machines. It is claimed to increase the durability of the rollers and give better results in printing.

**Fashioned Hosiery Machine.** T. Grieve & Co., Leicester, England. A circular machine for knitting fashioned hosiery.

**Card Feed.** Johann Week, Werdau, Germany. An improved stripping device for the spike aprons of card feeds, the object being to obtain a more uniform feed. Two combs working in opposite directions are used.

**Carpet Loom.** Georg Michaelis, Kottbus, Germany. An improved device for tying the knots in the weaving of Smyrna carpets.

**Clothing for Woolen Cards.** E. Mundorf, Aachen, Germany. Card clothing in which the upper layer of felt for supporting the wire is protected by being covered by a knit fabric.

**Dyeing Skein Yarn.** Rittershaus & Blecher, Barmen, Germany. An improved machine for dyeing yarn in skeins, which is designed to duplicate as far as possible the old method of handling by hand.

**Measuring Cloth in a Fulling Mill.** The Maschinenfabrik und Eisengiesserei Wilh. Quade, Guben, Germany. A device for measuring the length of the cloth in a fulling mill during the fulling process and without removing the piece from the mill. A description appears in this issue.

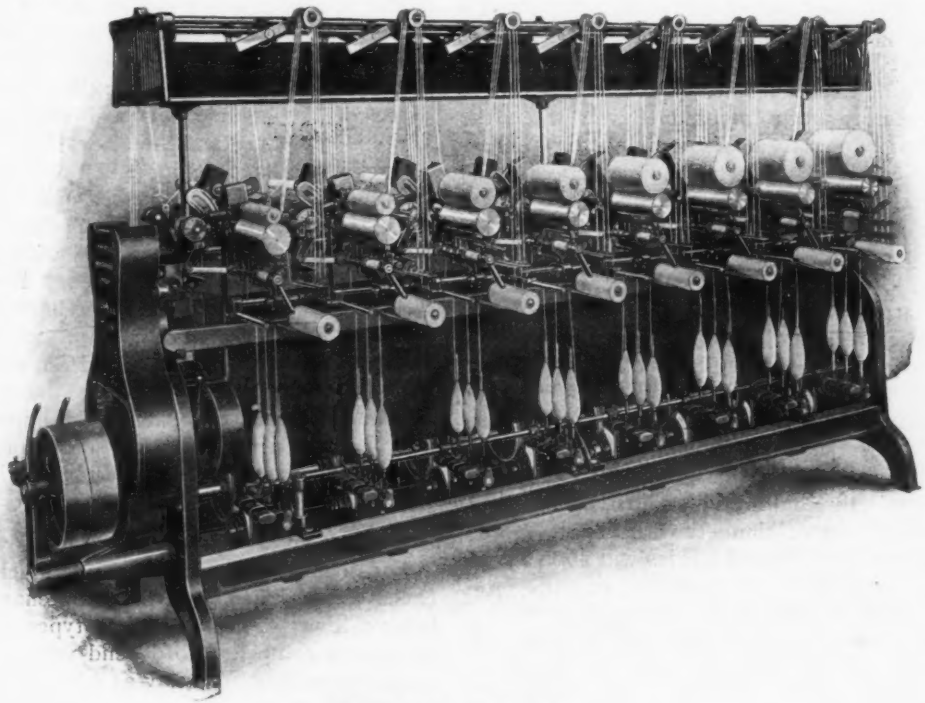
## A UNIFORM DOUBLING WINDER.

The accompanying illustration shows the new camless doubling winder manufactured by the Lowell Machine Shop, Lowell, Mass., under the G. W. Foster patents. Like their well-known cone winder, this machine is built in gangs of sixteen spindles, requiring a floor space 9 ft. 5 in. long by 30 in. wide.

The capacity of the machine is measured by a uniform drawing speed of 600 ft. per minute, and at this speed an automatic positive stop is employed which permits the tying of the single end, thereby preventing excessive waste, and the tying of objectionable bunch knots.

A special feature is the overhead compensating thread pulley which acts as a tension evener and prevents the accumulation of kinks in the yarn when the end breaks and slack is introduced. A novel attachment on this machine is the automatic threading device which places the yarn in the reciprocating guide after, and only after, the package starts and the yarn is in motion. This proves a valuable device, a specialty on fine delicate yarns as it insures a gradual even start, and prevents the quickly moving guide from striking and cutting the stationary strands.

This machine is equipped with independent slub catchers for each strand and fitted with an adjustable tension arrangement that insures a uniform delivery on the twister frames.



A NEW DOUBLING WINDER.

These machines have been installed in a number of fine yarn mills and are proving very satisfactory, the manufacturers claiming considerable saving in the cost of winding per pound together with all the usual advantages derived from this system of winding two or three ends on one tube for twisting purposes.

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The domestic raw cotton exported during the year ending August, 1910, amounted to 6,484,429 bales of 500 pounds each, valued at $460,868,020. Of this cotton 38 per cent. went to the United Kingdom, 30 per cent. to Germany, and 15 per cent. to France.

## THE NAPPING AND SHEARING OF COTTON FABRICS.

Two quite radical developments in the napping and shearing of cotton fabrics are now being installed in the mills of some of the largest napped goods manufacturers in this country. The napping machine which is producing the new finish is of 36 roller construction, and by a new system of power transmission and of lubrication, produces a short, thick, well-covered nap on blankets, flannelettes and print cloths, without the use of a felting machine. These results have heretofore been impossible even when the felting process was also employed. The improvement results from the perfection in the drive of the napping rollers as obtained by the new process, it having been demonstrated that the belts are always free from oil. By the use of large belts, with pulleys of large diameter, also ball bearings on the worker rollers, a uniform drive and a great saving of power have been obtained.

In the shearing of cotton goods another novelty has also been introduced which permits close shearing of napped cotton fabrics in imitation of woolen goods, this requiring a perfectly built and adjusted machine. Sample lines of blankets with this finish and also the new sheared fabrics will soon be on the market, and it is predicted that they will win marked favor in the trade.

The napping and shearing machines referred to are built by the A. Monforts Maschinenfabrik, M. Gladbach, Germany, and are sold exclusively in the United States by L. H. A. Schwartz & Co., 53 State St., Boston, where samples of the work described may be seen and full details secured regarding construction of the machinery.

## MONOPOLE OIL.

This oil has been extensively used in Europe for many years by textile dyers and finishers with the most satisfactory results. It is easily soluble in cold water, also in hard or limy water, without precipitating the lime or magnesium salts, and it gives a clear solution in warm water. It is used as a substitute for Turkey red oils and soaps hitherto employed in dyeing Turkey red, Alizarine, Diamine and Immedial colors. The method of working is the same as for the Turkey red oils and soaps, but the same results are obtained with a smaller quantity of Monopole oil. In using it with the Diamine and Immedial colors it is added to either the cold or warm dye bath, the object being to make the colors dye evenly. The dye bath exhausts better, the colors are fuller and brighter and the yarn is softer. No alkali is required for emulsifying the oil.

Monopole oil is used in textile printing in place of the soluble oils and soaps. The white is kept clean and the colors do not run. It is claimed that Monopole oil produces better shades than do Turkey red and soaps in dyeing or printing cotton, wool, silk or half silk. Monopole oil is also used with excellent results for finishing and sizing. It mixes well with the finishing and sizing ingredients, such as glue, tragacanth, gum, dextrine, starches and flour, and is added for smoothing, softening and brightening the goods. Further information regarding Monopole oil can be obtained from the sole American agents, Jacques Wolf & Co., Passaic, N. J.

## CEMENT THAT WILL STAND 3,000° F.

For many years, engineers have experienced great difficulty in the maintenance of brick settings of furnaces of all types. They have been compelled to depend very largely upon the ordinary fire clay as a bonding material, and as this fuses at a comparatively low temperature, the bond between the bricks is rapidly destroyed and the result is that the cracks are opened up between the bricks, through which the gases of combustion enter, eventually weakening the brick and causing the walls to collapse. Every engineer realizes the annoyance and expense occasioned by occurrences of this kind. Another objectionable feature is the fact that refractory bricks become very porous on the surface and very soon the clinkers from the coals attach to the surface of the brick and in removing these with tools, the bricks are broken.

After several years devoted to research

work on refractory cements to overcome these troubles, the H. W. Johns-Manville Co., New York, are now offering to the trade a line of cements called J-M Refractory Cements for the following purposes: Furnace setting of various types, cupolas, lining brass furnaces, assayers' crucibles, oil burning, tilting and rotary furnaces and for patching and facing bricks in place in the fire zone under various conditions. These cements are rated to resist temperatures as high as 3,000° F. They have also produced a coating for walls known as J-M Bricklime cement, which prevents clinkers from adhering for walls known as J-M Brickline

Realizing that the conditions under which these cements are used, are variable, they have been made capable of modification to meet conditions as they come up and the Johns-Manville Co. invite the trade to advise them regarding any conditions that are troublesome and they will make a careful investigation and offer suggestions which will tend to overcome the difficulty.

## THE McLANE HEMP MACHINE.

No industrial invention has been of greater relative economic value to those who harvest certain crops than a perfect hemp machine would be to the planters of hemp in the Philippine Islands. With labor always a doubtful factor, the need of such a machine was so obvious, even in the earliest days of our occupation, that many clever mechanics turned their attention to the problem with the result that hemp machines of varying capabilities and merits have been presented to the public from time to time. None have received unqualified approval, but of all that have been considered seriously one of the most effective has been the McLane hemp machine.

It is true that when these machines were placed in the district of Davao they failed, but the failure was due entirely to faulty construction and was only a matter of structural weakness. The mechanical principles involved in the machine have never been questioned and are recognized by all as one of the only correct modes by which the proper, primary hemp fibers can be extracted and the secondary, inferior and valueless fibers completely eliminated from the hemp plant.

The McLane hemp machine company, recognizing its error in attempting to build too light a machine for the very heavy work demanded of it, proceeded to construct with the aid of the best European mechanics and the facilities afforded by the large machine shops of the W. S. Bailey company of Hongkong, a machine that was in every way capable of meeting the tremendous strain demanded of it. The result is that the machine, which was demonstrated to the satisfaction of all concerned last October in Manila, weighs nearly double what any McLane machine has weighed. It is still, however, easily portable, being mounted on skids, which enables a single carabao to move it from point to point in the hemp field.

The quality of the fiber turned out by the McLane hemp machine has at no time been in question. Furthermore it readily strips perfect fiber from the so-called "outlaw" hemp, Baguisanum, which the hand laborer refuses to strip at any price.

The unique feature of the McLane hemp machine, and the one that gives it its greatest value is the device called the "butt stripper" by means of which the petiole is prepared for the main machine.

The butt stripper cleans the butt end of the petiole for a distance of about twelve inches and in so doing removes all except the primary superior fibers, so that when the petiole is passed over the "whipper" and under the main knife only these strong primary, or superior fibers are preserved and all of the secondary weak fibers are removed with the valueless pulp. The presence of the secondary fibers in other machine-stripped hemp heretofore has absolutely destroyed its market value.

The McLane hemp machine company has spared neither labor nor expense in this matter of turning out perfect fiber. For what possible value can a machine have, even if it will turn out 30 piculs (4,125 pounds) of fiber a day, which none has yet done, if its

product is refused in the hemp market at any price?

In regard to the quantity of hemp produced, the McLane hemp machine will produce more from any given kind of hemp than can be turned out by any other hemp machine, with fewer interruptions in the work and with fewer men. It claims the record.

The coming exhibition at the Zamboanga fair will give visitors every opportunity to see the McLane hemp machine operate. All features of it will be thoroughly demonstrated and all of the claims made for it proven. Its capacity, its portability and the quality of fiber it produces, will be tested. Furthermore the McLane hemp machine company will undertake to turn out any commercial grade of hemp desired. It is hoped that as many planters as possible will be present at the fair, if for nothing more than to see the latest development in hemp machines.—The Manila Times.

## MEASURING CLOTH IN THE FULLING MILL.

*From the Textile Zeitung.*

(Translated from the German by the Editor of the Textile World Record.)

In order to finish fulled goods properly it is essential that the pieces be measured during the fulling process to determine whether they are being shrunk to the required extent. Heretofore the measuring of the pieces has necessitated stopping the machine, pulling the cloth out of the mill and measuring it with the yard stick. This operation consumes much time and has the further disadvantage of interrupting and retarding the fulling process by cooling the cloth. Moreover the light colored pieces are very liable to become soiled. Another method of measuring the cloth consists in the use of a dial attached to the fulling mill and connected by a worm gear with the shafting of the lower roller, the gearing being so adjusted that the length of the cloth passing between the fulling mill rollers is indicated on the dial. The lower rollers serve as a measuring roller and the dial indicates the length of the cloth. The objectionable measuring by hand was thus obviated, but the new method was not reliable when the lower roller became worn. There was also the objection that the device could be used only for measuring the cloth in the mill to which it was attached. The Maschinenfabrik und Eisengiesserei Wilh. Quade, a German concern, has recently placed on the market a device which is easily carried from one fulling mill to another and which overcomes the objections to which we have called attention.

Fig. 1 shows the Quade measuring device and Fig. 2 is the section of a mill showing the method of using the measurer. The measuring wheel, M, Fig. 2, is made of material that is not affected by soap or acid. The circumference is corrugated and corre-

FIG. 1.

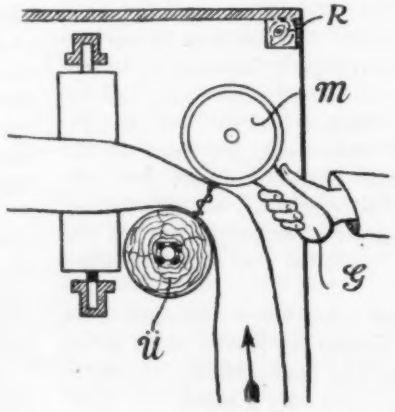


FIG. 2.

sponds to the divisions on the dial. The gearing is steel and bronze and inclosed in an aluminum case. The pointer is held in place by a spring and can be moved by hand to zero when desired. The dial is made of bronze, the figures and division lines being raised. One complete revolution of the pointer indicates 65 yards of cloth. The size of the measuring wheel enables the device to be easily inserted between the top of the frame, R, and the cloth running over the carrier roll, U. The device is so light that it can be easily carried by the handle, G, Fig. 2. When the cloth is to be measured the mill is stopped so as to bring the seam opposite the carrier roller, U. The measuring device with the pointer at zero is then applied so as to bring the wheel on the seam. The mill is then run slowly until the seam comes around again to the same position, when the length of the piece is indicated on the dial to within one-quarter of a yard. A higher degree of accuracy is unnecessary for measuring in the fulling mill. The same machine is suitable for all the fulling mills regardless of the size of the rolls or other conditions. This device also has the advantage that it can be easily taken care of when not in use, preventing injury by reason of dampness or blows of any kind.

Moreover it is not necessary to take the cloth from the mill when measuring it, so the objectionable cooling off and soiling of the goods are avoided. As the cloth is measured much more quickly than with a yard stick, considerable time is saved and the production of the machine is consequently increased. In addition the measurement is more accurate than when the goods are measured by hand as it is impossible to avoid stretching the cloth during hand measuring.

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The world's consumption of cotton during the year ending August, 1910, amounted to 19,397,000 bales.

The number of spindles in the United States in 1910 was 29,188,945, and exceeded the total for 1909 by 611,848, or only 2 per cent.

## THE WORLD'S FLAX PRODUCTION.

*BY CHARLES RICHARDS DODGE.*

The German flax industry, formerly covering an area of 329,000 acres, chiefly in East Prussia, Saxony, Westphalia and Hanover, has now declined to the point that it is no longer regarded as of sufficient importance as a crop to be included in the government returns. A considerable acreage is still cultivated, however, and the fiber still figures in our imports. There was imported in 1908 480 tons valued at $180 per ton, or about 8 cents per pound, which is lower than the average Russian imported.

Switzerland, which figured in our flax imports in 1908 to the extent of 15 tons, formerly grew a lot of good flax, an area of 27,000 acres being reported for 1884. The industry has suffered decline, however, and I am informed by Consul General Mansfield, at Zurich, that at the present time flax is only grown in a few places—chiefly in small patches by families for their own use. Fiber imported into the United States was valued at $328 per ton, which indicates that it was good flax.

The bulk of Russian flax is of low grade, and with Italian flax is the cheapest we import. Nevertheless there are districts in Russia which produce fine fiber, that from Pskoff being of superior quality, and commanding the highest prices for Russian fiber. The brands of Archangel, St. Petersburg and Riga are also of fine quality. The Russian culture is carried on in three distinct areas in European Russia: the Northwest or Baltic region, the Central and the Southern. Stated differently, two vast areas devoted to flax culture may be recognized: (1) the Black-soil provinces, where the culture is for seed, and (2) the Common-soil provinces, of which there are 25, where the plant is grown for fiber. The most important are Viatka, Pskoff, Lifland, Kostronia, Vladimir, Koona, Niji-Novgorod, Tver, Yaroslaw, Perm, Vitebak, Smolousk, and Volgoda. Less important, in point of acreage, are St. Petersburg, Moscow and Archangel, the latter being the most northerly district where flax is grown, while it is cultivated southward to Poland,

which, as late as 1902, had nearly 100,000 acres under cultivation. In Caucasia there were 58,000 acres in cultivation in 1907.

The flax of Russia is both dew-retted and pool-retted, the former known to the trade as "Slanetz"; the latter, "Matchenetz," while ungraded shipments from St. Petersburg are known as Siretz. Russian flax varies greatly in color, some of it, even in the lower grades, being almost as light as medium grade Courtrai, and sometimes it shows the greenish gray of Irish flax. The differences in fineness, softness and luster, as well as in tensile strength, are very marked; much of it is dull, coarse and badly cleaned, and the larger part of it is of low value. It is imported into the United States as low as 7 1/2 cents per pound, or $168 per ton. The bulk of Russian flax is of low grade because it is produced by the peasant farmers in a primitive fashion—carelessly retted in stagnant pools, and when removed from the water and spread to dry often exposed to frost or snow. The straw becomes frozen to the ground, causing material injury to the after product.

The low temperature also affects the retting, and as the operatives are obliged to work in the chilling waters the operations are slighted and put through with the least possible trouble. Retted indifferently, and in many ways, by farmers of varying skill—or little skill, the fiber naturally would be uneven, dull, coarse and tender, and often of bad color. But the lack in quality is made up in quantity, and the flax spinning industries of Europe, and to a small degree of America, are under tribute to Russia, which supplies the great bulk of the cheaper fiber required—as has been said, pointedly, "inundating the rest of Europe and a part of America with its flax." Not content with supplying the world with flax, Russia produces a large part of the world's hemp. As in other countries of Europe, there has been a decline in the industry in late years, owing to many causes which may be readily explained, but which need not be stated here. According to statements made by Consul John R. Grout, of Odessa, the greatest falling off in flax culture has been in those provinces that formerly produced the largest quantities of good flax fiber for exportation. The falling off in area last year in Livonia, Kurland and Tver amounts to 15 per cent., in Smolensk 10 per cent., and in others 5 per cent.

Three or four thousand years ago Egypt produced a large part of the world's supply of flax. Thirty years ago her flax crop covered 15,000 acres, while now the production is too small to be reported—and Egyptian cotton brings better prices. Denmark, 30 years ago, had an area of 17,000 acres, Great Britain, outside of Ireland, 7,000 acres, while Spain, Portugal and Greece grew smaller areas, but they are no longer reckoned as flax growing countries.

In North America, Canada cultivates 150,000 acres for seed, but produces only a little more than 500 tons of fiber. The United States with a culture of between two and three million acres for seed produces perhaps a little more than half Canada's contribution to the world's flax supply. Mexico grows a very little fairly good fiber—less than formerly—and, in South America, Argentina and Uruguay, producing annually 33,000,000 bushels of flax seed, grow no fiber whatever.

Japan has never been reported as a flax producing country, yet it may surprise the trade to learn that Japan has a very flourishing flax industry, with an area (in 1907) of 25,000 acres under cultivation. The crop is produced chiefly in Hokkaido (Yezo), Sapporo being the center of the industry, where large spinning interests are located. I am informed by Suzuma Suzuki, of the Hakkaido Spinning & Weaving Co., that the flax culture of Japan, while "20 years young," is conducted after up to date European methods, and under the general direction of experts who have studied the industry in European centers where the best commercial flax is produced—farmers doing the cultivating. Samples of this flax, examined by the writer, were light gray in color, strong, fine and lustrous. Japan may some day become a source of supply for the United States—who knows?

### THE WORLD'S SUPPLY.

In making up a statement of the flax supply of the world the principal sources of in-

formation are, first: the official statistics of countries of largest production, as published by the governments of those countries—usually two years or more after the crop has been sold; second: trade statements issued in reports and circulars, emanating from commercial centers, and lastly, estimates based on information and data secured from individuals. In Table A, which follows, the crop of 1907 has been taken as the basis because it has not been possible to obtain complete data for a later year. The figures marked official were compiled by Charles M. Dougherty of the Bureau of Statistics, Department of Agriculture, those designated as estimated, having been contributed by the writer. The countries are named in the order of their importance.

Table A (Official).

| | | |
|---|---|---|
| Russia in Europe | lbs. | 1,679,201,000 |
| Austria-Hungary | | 131,168,000 |
| Russia in Asia | | 81,430,000 |
| France | | 49,046,000 |
| Italy | | 41,917,000 |
| Belgium | | 27,000,000 |
| Netherlands | | 26,318,000 |
| Ireland | | 26,089,000 |
| Roumania | | 5,018,000 |
| Servia | | 1,601,000 |
| Sweden | | 1,425,000 |
| Bulgaria | | 64,000 |
| (Estimated.) | | |
| Germany (1906) | lbs. | 20,756,000 |
| Japan | | 10,500,000 |
| United States | | 1,000,000 |
| Canada | | 1,175,000 |
| Mexico | | 200,000 |

This makes a grand total of 2,098,900,000 pounds, in round numbers, equivalent to 937,000 tons, and representing, at a liberal estimate for all countries, a cultivated area, for fiber, of 4,500,000 acres. Mr. Dougherty has sent me figures, also, for 1908 (as far as obtainable), as follows:

Table B.

| | | |
|---|---|---|
| Austria | lbs. | 74,106,164 |
| Hungary (proper) | | 28,826,755 |
| Netherlands | | 19,691,988 |
| Ireland | | 17,744,846 |
| Roumania | | 2,404,361 |
| Servia | | 1,601,217 |
| Bulgaria | | 168,433 |

Complete figures showing acreage cannot be given, but the following table shows the areas cultivated in principal countries, for 1907.

Table C.

| | | |
|---|---|---|
| Russia | acres | 3,523,062 |
| Austria-Hungary | | 154,817 |
| Italy (1902) | | 129,310 |
| France | | 63,000 |
| Ireland | | 59,659 |
| Belgium | | 56,000 |
| Germany (1906) | | 43,242 |
| Holland | | 41,540 |
| Roumania | | 31,678 |
| Japan | | 25,000 |
| Total | | 4,127,693 |

I am indebted to William Morton, secretary of the Irish Flax Supply Association, of Belfast, for the figures of acreage in eight countries, the figures for Japan having been supplied by Mr. Suzuki of Sapporo and the German acreage estimated by Dr. Overmann of Dusseldorf, and received through the courtesy of Consul General Thackara of Berlin. Germany has published no flax statistics since 1900.

Regarding values, there are no available figures for the different countries that would give even an approximation of the annual money value of the flax crop of the world. Figures of value are difficult to obtain, for with so many different grades of fiber, produced in varying quantities, it is hard to find a basis for estimate, and to secure the true figures would necessitate a census of the world's supply, by districts where the fiber was produced. Mr. Morton has calculated the average value of live flax in five countries, for the year 1907, to be £41 per ton ($199). Referring to this in a private letter he states that for less known countries, the value would not exceed £20 per ton. His figures for live flax are: Belgian, £68 ($330); Dutch, £57 ($277); French, £53 ($257); German, £39 ($189); Russian, £33 ($160); average, £41 ($199) per ton. For tow, Belgian, £18 ($87); Dutch, £27 ($131); French, £11 ($53); German, £21 ($102) and Russian, £28 ($136); average, £24 ($117).

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Of the cotton manufactures exported from the United States during 1910, $10,102,094 represents the value of unbleached cloths: $1,351,040 the value of bleached cloths; and $8,519,674 the value of dyed, colored, or printed cloths.

# Personals.

Chas. Gledhill has accepted the position as overseer of finishing at the Tilton Mill, Tilton, N. H. He comes from Providence, R. I.

Chas. P. Learned has been appointed superintendent and designer at the Ray Mill, American Woolen Co., Franklin, Mass., to succeed Chas. H. Park.

E. M. Converse, who recently accepted a position as overseer of spinning at the Ohio Yarn Mill, Cleveland, Ohio, has been promoted to the position of assistant manager.

J. F. Milner & Co., wool dealers, 170 Summer St., Boston, Mass., have given up the wool business. J. F. Milner has accepted a position as manager of the Traugott, Schmidt & Sons' wool department, Detroit, Mich.

Chas. H. Park, superintendent of the Ray Mill, American Woolen Co., Franklin, Mass., has been appointed agent of the Beaver Brook Mill, Collinsville, Mass., succeeding Henry E. Kirk.

K. F. McCollum, overseer of carding in the Valley Creek Mills, Selma, Ala., has resigned, to accept a position at Wesson, Miss.

J. G. Hogue has been promoted from second hand to overseer of weaving in Mills No. 1 and 2, Trion, Ga.

J. T. Alexander, formerly of the Glen Raven Mills, Burlington, N. C., has accepted a position as overseer of carding and spinning at the Glencoe Mills, same place.

F. C. Folk has resigned as overseer of spinning at the National Cotton Mills, Lumberton, N. C., to take charge of carding and spinning at the new mill at Vass, N. C.

John W. Walter has been appointed overseer of carding at the Paola Mill, Statesville, N. C. He comes from Lando, S. C.

V. B. Bogan, formerly of the Beaumond Mill, Spartanburg, S. C., has accepted a position in charge of weaving nights at the Ella Mill, Shelby, N. C.

T. D. Mullinax, formerly of the Ella Mill, Shelby, N. C., has accepted a position as overseer of weaving at the York Cotton Mill, Yorkville, S. C.

Frank Wood, overseer of finishing at the Plainfield Woolen Co., Central Village, Conn., has severed his connection with that company.

A. Thorpe, overseer of carding at the Green River Mills, Tuxedo, N. C., has resigned, to accept a position as overseer of carding and spinning at the new Jennings Cotton Mill, Lumberton, N. C.

Victor Thewlis has accepted the position as superintendent of the Tilton Mill, Tilton, N. H. He comes from the Paton Mfg. Co., Sherbrooke, P. Q.

Heywood Ramsden, for the past two years overseer of dyeing and finishing at the Central Worsted Co., Central Village, Conn., has severed his connection with that company.

Geo. P. Wilman has been appointed overseer of dyeing at the Ayer Mill, American Woolen Co., Lawrence, Mass., succeeding Louis F. Bume.

Thomas Silk, overseer of the sorting department at the Beaver Brook Mill, Collinsville, Mass., has severed his connection with that company.

Francis C. Holmes has been appointed treasurer and general manager of the Plymouth Cordage Co., Plymouth, Mass., to succeed his father, the late Gideon F. Holmes.

Oliver P. Wattles, secretary and assistant manager of the Jewett City Textile Novelty Co., Jewett City, Conn., has severed his connection with that company and is succeeded by Alex. McNicol.

James J. Dougherty has accepted the position as overseer of dyeing at the Sidney Blumenthal Co., Shelton, Conn. He is to have charge of the cotton yarn dyeing in the plush and velvet department. He comes from Pawtucket, R. I.

Timothy Mooney, manager of the New York Mills, N. Y. Mills, N. Y., has resigned and is succeeded by Geo. Fish. Mr. Fish was superintendent of this mill for a short time, having come from the Richmond Mills Co., Richmond, Me., where he held the position of agent for a number of years.

D. S. Knight, superintendent of the Tilton Mills, Tilton, N. H., has severed his connection with that company.

Fred P. Taylor has been appointed superintendent of the Farwell Bleachery, Lawrence, Mass. He comes from Providence, R. I.

Geo. H. Snow has accepted a position as overseer of carding at the Hope Mill, Staffordville, Conn. He comes from New Brunswick, N. J.

Robert Quinley has accepted a position as overseer of carding at Hope Valley, R. I., in the mill formerly operated by C. S. Taylor. This mill is to be operated by the company which is operating the Fabyan Woolen Co., Stafford Springs, Conn., Herman Rawitser, president.

Alex. R. Howard has been appointed secretary and treasurer of the Gibson Mfg. Co., Concord, N. C., to succeed E. C. Banhardt. Mr. Howard formerly held the position as designer at this mill and is succeeded by Eugene Banhardt, Jr., in the designing department.

Geo. Spencer has been appointed designer at the Norristown Yarn Co., Norristown, Pa. He formerly held this position and succeeds D. A. Davenport.

Price Williams, overseer of weaving at the Hall

ville Mills, Preston, Conn., has severed his connection with that company.

J. K. Pray has been elected president of the Albany Cotton Mill, Albany, Ga. Mr. Pray is also president of the Citizens' First National Bank of Albany and president of the Albany Baseball Association. Edwin Sterne was again elected treasurer of the above concern, at a meeting of the stockholders, recently held.

A. J. Chapdelaine has accepted a position as overseer of weaving at the Locustville Woolen Co., Hope Valley, R. I., succeeding Chas. H. Elliott.

Geo. W. Davis, formerly overseer of dyeing at the Huntington Mfg. Co., Huntington, Mass., has accepted a position with the Wood Worsted Mill, American Woolen Co., Lawrence, Mass.

James Woodhouse has been appointed overseer of carding at the Kennebec Mill, Fairfield, Me. He comes from Pittsfield, Me.

Wm. S. Nason, overseer of finishing for the past two years with H. T. Murdock & Co., Proctorsville, Vt., has severed his connection with that company.

Harry Lasuer has accepted the position as overseer of finishing at the Central Worsted Co., Central Village, Conn. He was formerly employed at the Sutton Mill, No. Andover, Mass.

Henry Rowe, for the past three years in charge of bleaching at the Cannon Mfg. Co., Kannapolis, N. C., has resigned to accept a position as superintendent of the bleachery with the Erwin Cotton Mills Co., West Durham, N. C.

Thomas McGhie has accepted the position as overseer of dyeing at Harris & Co., Rockwood, Ont., Canada.

Jno. Lyons has accepted the position as overseer of finishing at the Moosup Mill, Moosup, Conn., succeeding the late Almar Haigh. Mr. Lyons was formerly employed at the Saranac Mill, Blackstone, Mass., but more recently at Philadelphia.

Richard E. Evans, superintendent of the New Hartford Cotton Mfg. Co., New Hartford, N. Y., has severed his connection with that company. He has held the position for the past eight years.

Fred Greenwood has accepted a position as overseer of dyeing at the Tremont & Suffolk Mill, Lowell, Mass. He was formerly employed at the Merrimack Mfg. Co., Lowell, Mass., but more recently with a large cotton mill in Canada.

A. F. Burton, who resigned some time ago as overseer of weaving at the Cox Mill, Anderson, S. C., is now overseer of weaving, warping, slashing, and drawing at the new mill at Hartwell, Ga.

John H. Garret, formerly with the Alexander City Cotton Mill, Alexander City, Ala., but more recently of the Manchester Cotton Mills, of Manchester, Ga., has accepted a position with the Valley Creek Mills, Selma, Ala., as overseer of carding.

W. E. Cheswell, superintendent of the Courtenay Mfg. Co., Newry, S. C., has resigned.

John Robertson has accepted the position as overseer of carding and spinning at the Capital City Mills, Columbia, S. C.

Chas. H. Stott has been engaged as overseer of dyeing at W. C. Plunkett & Sons Mill of Adams, Mass., succeeding Wm. Park. Mr. Park has held this position for several years. He comes from the Otto Pietsch Dye Works, Milwaukee, Wis.

P. H. O'Neill, superintendent of the Lincoln Cotton Mill, Evansville, Ind., has resigned to accept a similar position with a large mill at Huntsville, Ala.

Geo. S. Homer has been elected president of the Booth Mfg. Co., New Bedford, Mass., to succeed Wm. L. Mauran.

Thomas Cryer, overseer of finishing at the Merrimack Mfg. Co., Lowell, Mass., has resigned to accept a position to taken entire charge of the cloth department with the American Printing Co., Fall River, Mass.

John McCalley, overseer of finishing at the Garland Woolen Co., Staffordville, Conn., has severed his connection with that company. He is succeeded by Thomas Somerville.

C. H. Cook has accepted the position as overseer of finishing at the H. T. Murdock & Co.'s Mill, Proctorsville, Vt. He succeeds Wm. Nason.

H. E. Whitaker, overseer of finishing at the Brightwood Mfg. Co., No. Andover, Mass., has resigned.

W. P. Leister, for several years overseer of spinning at the Cliffside Mills, Cliffside, N. C., will soon take charge as superintendent of the Shelby Cotton Mills, Shelby, N. C.

Wm. I. Woodward, superintendent of the Shelby and Belmont Mills, Shelby, N. C., has resigned on account of poor health.

R. W. Lewis, overseer of carding at the Tacapau Mill, Tacapau, S. C., has resigned to accept the superintendency of the Jackson Mill, Iva, S. C.

J. W. Daves, overseer of carding at the Edwards Mfg. Co., Crawford, Ga., has resigned to accept a position as overseer of spinning at the Jefferson Cotton Mills, Jefferson, Ga.

F. E. Young has been appointed overseer of spinning at the Gluck Mills, Anderson, S. C.

C. A. Hamilton, for the past four years with the Mecklenburg Mill, Charlotte, N. C., has accepted a position as superintendent of the Sevier Cotton Mill, Kings Mountain, N. C.

Chas. Berberick has accepted the position as overseer of weaving at the Uncasville Mfg. Co., Versailles, Conn. He comes from Norwich, Conn.

Edwin E. Ashley has accepted the position as overseer of carding at the Richmond Mills, Richmond, Me. He was formerly employed for the Whitin Machine Works, Whitinsville, Mass.

Frank W. Millet has been appointed overseer of carding at the Blackstone Mfg. Co., Blackstone, Mass., succeeding Frank L. Bliss, who was appointed superintendent of this company.

Joseph R. Stott, assistant superintendent of the Hamilton Woolen Co., Globe Village, Mass., has accepted a position as superintendent of the Poulan Cotton Mills, Poulan, Ga. He intends to take up his duties about March 1st.

Robert Rooch, general manager of the Cranston Print Works, Providence, R. I., has tendered his resignation to take effect March 1st. He has been with this company for the past six years. He is succeeded by Chas. B. Kimball of Passaic, N. J.

Henry M. Templeton, overseer of finishing for Sidney Blumenthal & Co., Shelton, Conn., has severed his connection with that company.

C. B. Nordeman has been elected secretary and treasurer of the Bradford Worsted Spinning Co., Louisville, Ky., one of the largest concerns in that part of the country. He was formerly employed for Warren S. Hallcross.

David S. Johnson, agent of the Harmony Mill, Cohoes, N. Y., has severed his connection with that company. He is the son of Daniel J. Johnson, who for many years was superintendent of this mill.

Wm. Hines, overseer of dyeing at the Premier Worsted Co., Wickford, R. I., has severed his connection with that company.

Thomas Morrison, Jr., formerly superintendent of Jno. N. Stearns & Co.'s silk mill, Elmira, N. Y., has resigned to accept a similar position with T. J. Mitchell & Company's plant at Plainfield, N. J.

John McCauley has been appointed overseer of finishing at the Cheshire Mill, Harrisville, N. H. He was formerly employed at the Garland Woolen Co., Staffordville, Conn.

T. H. Brickley has accepted the position as overseer of dyeing at the Wallace & Smith Blanket Mills, La Porte, Ind.

Samuel Cogswell, overseer of weaving at the Assawaga Co., Dayville, Conn., has severed his connection with that company.

P. W. McMahon has accepted the position as designer at the R. I. Worsted Co., Stafford Springs. Conn. He was formerly employed at the Burlington Mill, Winooski, Vt.

Henry Forward has accepted the position as superintendent of the South Acton Woolen Co., South Acton, Mass. He comes from Skaneateles Falls, N. Y.

John Temple, Jr., has been promoted from second hand in the card room to overseer of carding at the National Woolen Co., Cleveland, O.

Edward Bottomley has accepted the position as overseer of finishing at the Brightwood Mfg. Co., North Andover, Mass. He was formerly employed at the Beaver Brook Mill, Collinsville, Mass.

John Heaton, overseer of finishing at the Warren Woolen Co., Stafford Springs, Conn., has severed his connection with that company to accept a similar position with the Plainfield Woolen Co., Central Village, Conn.

Bernard Featherstone, overseer of spinning at the Granite Mill, A. L. Sayles & Sons, Pascoag, R. I., has resigned to accept a similar position at Pittsfield, Mass.

Geo. W. Harrington, overseer of carding and spinning for J. A. Humphrey & Son, Moncton, N. B., Canada, has severed his connection with that company.

Charles Hutchins was elected president of the Crompton & Knowles Loom Works, Worcester, Mass., and Lucius J. Knowles, treasurer and vice-president, succeeding F. P. Knowles, at their annual meeting held recently.

W. J. Wilson has been appointed superintendent of the Oxford Linen Mills, No. Brookfield, Mass., succeeding H. H. Kincaid.

John J. McCarthy has accepted the position as overseer of carding at the West Boylston Mfg. Co., Easthampton, Mass. He was formerly employed at the No. 3 Bennett Mill, New Bedford, Mass.

F. A. Mason has resigned his position with the Philadelphia office of the New England Cotton Yarn Co., and will become the representative for the Quissett Mill, New Bedford, Mass., in the Philadelphia territory.

James H. Riley has been appointed assistant superintendent of the Standard Spinning Co., Oswego, N. Y.

A. F. Bruton, overseer of weaving at the Cox Mill, Anderson, S. C., has resigned to accept a similar position at Hartwell, Ga.

Geo. A. Stevens has been appointed superintendent of Chas. M. Davis & Company's mill, Northfield, Vt., succeeding Geo. W. Gerry.

Geo. H. Thomas, overseer of carding at the Middlesex Mill, Lowell, Mass., has accepted a position with the Robert Dobson Co., of Pittsfield, Me.

Wm. Wells, overseer of dyeing at the Elm Mills Woolen Co., Tilton, N. H., has severed his connection with that company.

C. T. Cooper, overseer of spinning at Iva., S. C., has resigned and has accepted a similar position with the Orr Mills of Anderson, S. C.

B. D. Roy, formerly overseer of weaving at Honea Path, S. C., has accepted a similar position with the Orr Mills, Anderson, S. C.

Mark T. Smith has been appointed overseer of carding at the Chace Mill, Fall River, Mass. Mr. Smith is the son of John C. Smith of the Chace Mill.

Benn Verity, for the past six years assistant superintendent of the Dominion Textile Co., Ltd., Magog, P. Q., Canada, has accepted a similar position with the American Printing Co., Fall River, Mass. He succeeds the late James Crossley, whose death from pneumonia occured a few weeks ago.

T. P. Moose, overseer of spinning at the Wiscassett Mill, No. 4, Albermarle, N. C., has resigned.

A. L. Agner, who has been for the past three years overseer of weaving at the Nokomis Mill, Lexington, N. C., has resigned to accept a similar position with the Lowe Mfg. Co., Huntsville, Ala.

W. L. Meeks, formerly overseer of weaving at the Brogon Mills, Anderson, S. C., is now connected with the Cox Mills, of the same city in a similar capacity.

W. H. Johnson, formerly of Fries, Va., is now overseer of weaving at the new mill at Martinsville, Va.

M. H. McLendon, overseer of carding at the Palmetto Mill, Columbia, S. C., has resigned to accept a similar position with the Richland Mills, of the same place.

B. F. Spear has been promoted from overseer of carding to superintendent of the Marlboro Mill, Bennettsville, S. C., to succeed J. D. Campbell, who resigned.

C. E. Cole has accepted a position as overseer of weaving at the Ivey Mill, Hickory, N. C.

Hugh B. Fraser has accepted a position as overseer of finishing for Lawrence Webster Co., Malone, N. Y. He comes from Franklin, Mass., and succeeds Wm. Stuart.

Geo. W. MacGregor has accepted the position in charge of the shoddy department for James & E. H. Wilson, Taconic Mill, Pittsfield, Mass.

J. F. Ryan has accepted a position as overseer of spinning at the Millville Mfg. Co., Millville, N. J. He comes from Taunton, Mass.

Wm. J. Orr has accepted a position as second hand in the dressing department at the Burlington Mill, American Woolen Co., Winooski, Vt.

Jno. C. Wood has been appointed overseer of spinning at Quinapoxet, Mass., in the mill operated by C. S. Taylor, formerly of Hope Valley, R. I.

Henry W. Koehnkie has accepted the position as overseer of spinning at the Orr Felt & Blanket Co., Piqua, Ohio. He was formerly employed at the Lockport Felt Co., Newfane, N. Y.

Thomas Walker has been appointed overseer of weaving and dressing at the Jefferson Mfg. Co., Jefferson, Mass.

W. R. Hall has accepted the position as overseer of carding at the Skenandoa Cotton Co., Utica, N. Y.

Arthur E. Benson, superintendent of the Premier Worsted Mill, Wickford, R. I., has severed his connection with that company. He is succeeded by W. H. Parr. Mr. Parr was formerly president and superintendent of this mill.

Thomas Smith has accepted the position as overseer of dyeing at the Hoosac Worsted Mills, North Adams, Mass., succeeding Wm. H. Parr.

Ernest B. Nash, overseer of carding at the Falls Co., Norwich, Conn., for the past eight years has severed his connection with that company. He was presented with a beautiful watch chain and Masonic charm by the helep in his employ.

Fred Butterworth, second hand of carding at the Ann & Hope Mill, Lonsdale Co., Lonsdale, R. I., has succeeded Frank Mellett as overseer of carding at Pontiac, R. I.

Daniel Fallon has accepted the position as overseer of weaving at the Armstrong Woolen Co., Detroit, Mich., succeeding Geo. W. Bieber.

J. L. Lundeen, designer at the Montreal Cotton Co., Valleyfield, P. Q., Canada, has severed his connection with that firm. The overseers of the Gault Mill presented him with a smoking set, having assembled at the Central Hotel for the occasion. Richard T. Mills, overseer of spinning, made the presentation speech. Mr. Lundeen ably responded, remarking there being five nationalities represented at the evening gathering to pay a tribute of respect to a parting overseer that it was at such gatherings as these that the spirit of universal peace must radiate. A very enjoyable evening was spent. He was also presented with a gold mounted fountain pen by the help in his employ as a token of esteem.

Henry Kahn, superintendent of the Old Fort Knitting Mills, Fort Wayne, Ind., has severed his connection with that company. It is reported he is to start a small hosiery mill at Fort Wayne.

G. Alden Beers, acting manager of the Columbia Hosiery Co., New Haven, Conn., has resigned to become secretary and manager of the H. L. Welch Hosiery Co., Waterville, Conn.

L. J. Quinn, overseer of knitting at the James J. Regan Mfg. Co., Rockville, Conn., has severed his connection with that company.

Chas. E. Washburn has been appointed general manager of the Van Brocklin & Stover Mfg. Co., manufacturers of knit goods at Amsterdam, N. Y. He has been connected with this company for several years.

Samuel A. Seddon, overseer of dyeing and bleaching at the Norwich Knitting Co., Norwich, N. Y., has accepted a similar position with the Royal Gem Mill, St. Johnsville, N. Y.

L. W. Tiffany has been elected president of the New England Knitting Co., Winsted, Conn., to succeed the late J. E. Spaulding.

Jos. Dequoy, overseer of knitting at the Holmes Knitting Co., Malden, Mass., for the past fifteen months, has resigned.

Emory O. Smith, superintendent of the Auto Knitting Mills, Harrisburg, Pa., has severed his connection with that company.

Chas. J. McLaughlin has been appointed superintendent of the Utica Knitting Co., Utica, N. Y. He comes from Little Falls, N. Y.

Wm. J. Ferris has been appointed overseer of knitting for the James J. Regan Mfg. Co., Rockville, Conn. Mr. Ferris comes from Woonsocket, R. I., and held the position as boss knitter for the Glenark Knitting Co. of that city, for a number of years.

Thomas Feeney has accepted the position as overseer of night carding at the Fuld & Hatch Knitting Co., Cohoes, N. Y. He comes from Easthampton, Mass.

## DEATHS.

Wm. K. Fairbanks, agent of the Lowell branch of the Bigelow Carpet Co., Lowell, Mass., died at the Elliott Hospital, Brookline, Mass., on January 29, an operation having been performed at the hospital some time ago from which he never fully recovered. Mr. Fairbanks was the son of Chas F. Fairbanks, treasurer of the Bigelow Carpet Co., and a graduate of the Institute of Technology. He leaves a wife and three children. He was a member of the Board of Trade, trustee of the Lowell Textile School, and a member of the Kilwinnig Lodge A. F. & A. M. He was born Oct. 5, 1875.

Wm. Thornton, proprietor of the Kingston Yarn Mill, Kingston, Pa., died at his home at the age of 76 years. He had been ill for some time. The cause of his death was heart disease. He was prominent in fraternal organizations and a member of the Mass. Club and the Anti-Cabden Club. He is survived by a widow and two daughters.

Henry M. Steel of the firm of Edward T. Steel & Co., Bristol, Pa., manufacturers of worsted goods, died at the Germantown, Pa., Hospital. He had been suffering for some time with kidney trouble. Mr. Steel was highly respected and well versed in the tariff problem. For the past few years he had practically retired from business and devoted considerable of his time in writing articles on the tariff. He was a protectionist. Mr. Steel was born Sept. 5, 1840, and is survived by a widow, one son and three daughters. He was a director in the Penn National Bank of Philadelphia, a member of the Union League Country Club, Colonial Society, City Club, and the Historical Club of Pennsylvania.

Alfred March, manufacturer of knit goods at New Brunswick, N. J., died from a stroke of paralysis. His funeral was held from his late home, 154 Hamilton St.

Albert Waterman Smith, head of the wool firm of A. W. Smith & Co., 24 Davis St., Providence, R. I., and widely known in the textile trade throughout the New England and Middle Atlantic States, died at his home on Smith St. in that city, Jan. 26. His death was unexpected and a shock to his acquaintances. He is survived by a widow, one son and two daughters.

J. L. Robinson, treasurer and superintendent of the Robinson Mill, So. Windham, Me., died Feb. 1 at St. Barnaby's hospital, Portland, Me. He was in the woolen business at So. Windham for more than 20 years. He is survived by a widow, two sons and two daughters.

John Firth Lodge, president of John F. Lodge & Sons, Inc., Philadelphia, manufacturers of carpet yarns, died at his home in that city at the age of 71 years. He is survived by a widow. He was a prominent lodge man, being high in the orders of Richmond Lodge, No. 230, Free and Accepted Masons; Keystone Royal Arch Chapter, No. 175; Philadelphia Commandery, No. 2, Knights Templar; Mystic Lodge, No. 270, Independent Order of Odd Fellows; and Pequod Tribe, Improved Order of Red Men.

Elmar H. Haigh, overseer of finishing at the Moosup Mill, Moosup, Conn., died at his home in Moosup, Feb. 3. He had been ailing for some few weeks and is survived by a wife and three children.

Wm. Barrett, overseer of the spooling and winding department of the Dartmouth Mfg. Corp., New Bedford, Mass., died Feb. 5 at St. Luke's hospital, in that city, following an operation for appendicitus. His remains will be taken to Philadelphia for burial.

Israel R. Cohen, a silk manufacturer of Paterson, N. J., and proprietor of the Highland Mills, committed suicide on Feb. 5 by inhaling illuminating gas at his home in that city. Several weeks ago Mr. Cohen failed in business. It is said that he worried about his business affairs.

Z. F. Long, senior member of the firm of Z. F. Long, cotton mill owners, Portsmouth, Va., died Jan. 25 of paralysis.

Frederick W. Radcliffe, secretary and treasurer of the Radcliffe Bros., Shelton, Conn., manufacturers of men's flat wool underwear and seamless hosiery, was found dead at his home where he had committed suicide by hanging. He was well known in business circles and was 43 years of age. Up to the time of her death he had lived with his mother. After her death he became despondent and was especially so for the past few weeks.

Albert H. Drowne, formerly prominent in politics and who was at one time superintendent of cotton mills in Concord, N. H., died at his home in Revere, Feb. 14 at the age of 87 years. He served two terms as representative in the New Hampshire Legislature. He became interested in cotton manufacturing and was made agent of mills at Fitchville, R. I., and later was superintendent of mills in Pontiac, R. I., and in Jewett City, Conn. His last position was as superintendent of mills at Pennacook, N. H. He retired about fifteen years ago. He was a charter member of Horace Chase Lodge, A. F. and A. M., of Concord, and was also a member of Mt. Horeb Commandery, Knights Templars, of that city, Charles Ward Post, G. A. R., of Newtonville, and the Sons of the American Revolution.

James Walker, treasurer of Walker Bros. Dyeing & Bleaching Co., Chelsea, Mass., died at the age of 67 years. He leaves a widow and two sons.

Thomas Bolton, president and treasurer of the Bronx Co., bleachers and dyers of New York City, died at his home in that city. He is survived by two sons and three daughters.

# *Mill News*

**Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires, facts and gossip of the trade are referred to the TEXTILE ADVANCE NEWS, issued weekly by the publishers of the TEXTILE WORLD RECORD, at $15.00 per year.**

## COTTON.

### New Mills.

*Georgia, Monticello. A mill settlement to be called "Castle" is to be established by the Castle Cotton Mills, Ltd., in the neighborhood of Monticello. The mill buildings will be of reinforced concrete and the employes' cottages are to be of brick and concrete facing and equipped with electric lights. All the machinery is to be driven by individual motors as far as possible. As noted previously, it is proposed to build a plant of 50,000 producing spindles, 5,000 twister spindles and 1,200 looms for making fine converter's goods.

*Massachusetts, Fall River.. Plans are being drawn for a 3-story building, 220 ft. long by 88 ft. wide, by Edward I. Marvell for the Standard Fabric Co., and ground will be broken on Portland St., near the American Thread Co., at the earliest possible date which will probably be early in March. Manufacturing will be started in July or August with 5,500 ring spindles, 30 40-shuttle looms and 1,500 braiding machines. Narrow fabrics and braids will be made from 12s to 40s single and ply yarns. Complete dyeing and bleaching departments will be equipped and all machinery will be driven by electric power. The capital stock is $150,000. Dr. John Gilbert is president, and Edwin V. Livesey, formerly superintendent of the Heywood Narrow Fabric Co., is treasurer and buyer. The directors are the officers and Richard H. Cook, L. Holden, Robert Place, John Fielden, James C. Potter and Albert A. Jenks. Practically all the stock has been subscribed for.

*Massachusetts, Fall River. Work will be started in March on buildings for the Pilgrim Mills, and according to plans the plant will be ready to begin manufacturing in December. Cambrics will be made on equipment of 50,000 ring spindles and 1,200 looms, to be operated by electric power. As noted in earlier reports, the capital stock is $1,050,000 and the officers are W. C. Hawes, president; D. H. Hathaway, treasurer, and Eben C. Willey, agent.

*North Carolina, Lexington. Details of the new cotton mill to be built here by O. A. Robbins of Charlotte, Geo. W. Montcastle and others of Lexington, and New England men, are now being determined. A $500,000 company will be organized to build and operate a mill of 20,000 spindles and 400 looms.

*North Carolina, Meadow Summit. Building plans and specifications are being prepared for the Fine Arts Gingham Co. and call for a main structure, 500 by 110 ft., with saw tooth roof. Negotiations are reported in progress for machinery which will include 10,000 spindles and 400 looms. A charter was granted the company in December with capital stock of $300,000.

*North Carolina, Salisbury. A plant of 50 broad looms on mercerized and bleached damask table coverings is to be established by the Hambley Mfg. Co., construction work to be started on a building in May or June and manufacturing to be started about January, 1912. Plans and specifications will not be determined before April 10. The Hambley Mfg. Co. was incorporated several months ago with capital stock of $125,000 and has organized with Chas. C. Adams, president, and Gilbert F. Hambley, treasurer. Mr. Hambley at present acts as agent and buyer. This mill will probably be operated by electric power.

*South Carolina, Chesnee. The Chesnee Mills' building is progressing. It will be 482 ft. long, 132 ft. wide, with separate boiler and engine house and will be equipped with 20,000 spindles and 460 looms. The Fiske-Carter Construction Co. is building the mill and J. E. Sirrine of Greenville is the architect-engineer. This company was incorporated last July with capital stock of $400.000. W. E. Burnett, president of the First National Bank of Spartanburg, is president.

*South Carolina, Greenville. J. Adger Smyth, Jr., will be elected president of the Dunean Cotton Mills. The company will have capital stock of $1,000,000, as reported previously. Plans are being completed for a 50,000-spindle and 1,500-loom plant by J. E. Sirrine of Greenville.

*South Carolina, Greenville. The buildings for the Westervelt Mills will be of brick and of the following dimensions: Spinning and carding department, 130 by 425 ft., 2 stories high; weave shed, 302 by 231 ft., 1 story, with saw-tooth roof; picker and slasher department, 48 by 115 ft., 2 stories high; boiler room, 49 by 65 ft.; warehouse, 102 by 154 ft., with three compartments. Bids for construction work were opened this week. J. I. Westervelt is president and manager and Lockwood, Greene & Co. are the architects-engineers.

### Enlargements and Improvements.

Connecticut, North Grosvenordale. Twelve new combers are being installed by the Grosvernordale Co. in No. 2 Mill.

Massachusetts, Griswoldville. Electric lights have been installed throughout the plant of the Griswoldville Mfg. Co.

Massachusetts, Waltham. A new boiler house with a 200-foot chimney is to be erected by the Boston Mfg. Co. and several old boilers now in use will be replaced by new high pressure boilers. Specifications for the building contractors are

ready, and the contract will be let at an early date and the building completed in the summer. When all the old boilers have been removed the old boiler house will be torn down, giving better light in No. 2 Mill.

New York, Buffalo. It is reported the Buffalo Textile Co., manufacturers of automobile tire cloth on 20 looms, are installing additional equipment to keep up with the demand. This concern was organized last July under the laws of New York and has $10,000 capital, and a surplus of $10,000. John Gregson is president and treasurer and George Cunliffe is agent. The plant is operated by electric power.

*New York, LeRoy. The new machinery installed in the carding and combing departments of the LeRoy Cotton Mills has been started up and in the future employment will be given to about 15 per cent. more hands. The output of fine yarns is to be increased.

North Carolina, Burlington. New machinery equipment is being installed in the plant of the Eureka Mfg. Co.

*North Carolina, Lenoir. New equipment has been installed by the Moore Cotton Mills Co., bringing the total up to 5,376 spindles. The capital was increased last October to provide for this enlargement.

North Carolina, Rutherfordton. An increase of $25,000 will be made in the capital stock of the Cleghorn Mills Co. to purchase new machinery. The Cleghorn Mills Co. succeeded the Levi Cotton Mills a little over a year ago and planned to build an addition at that time. 6,480 producing and 3,200 twisting spindles are operated on cotton yarns.

*Pennsylvania, West Chester. Machinery equipment is being installed in the building at 308 East 5th St. by the new Chester Converting Co. Quilling and warping of cotton and linen yarns will be done at first and later artificial and natural silks will be handled. Particulars of this company have been given previously.

South Carolina, Charleston. The Royal Bag & Yarn Mfg. Co. has completed the installation of new machinery recently ordered which includes 100 gingham looms and some new finishing equipment.

South Carolina, Dillon. At a joint meeting of the stockholders of the Dillon and Maple Cotton Mills of Dillon, and the Hamer Cotton Mills of Hamer, S. C., it was unanimously decided to consolidate the three mills under the name of the Dillon Cotton Mills and to add 12,000 to 15,000 new spindles. The capital stock wil be increased to $1,000,000. Wm. M. Hamer, who has been president and treasurer of the three companies, will fill the same offices and G. D. Barlow will be general superintendent. The buying will be done by J. W. Sanford. White hosiery and weaving yarns have been manufactured in these mills up to the present, but a dye house is to be added and colored yarns will be made. The men interested in the merger include A. L. Bullock, G. D. Barlow, J. B. Gibson, A. J. C. Cobbingham, T. B. Stackhouse, J. R. Rogers, R. M. Jackson, Wm. M. Hamer and the Howard & Bullough Machine Co.

*South Carolina, Liberty. Good progress is being made on the addition to the Maplecroft Mills for which contract was awarded last October. This is a 2-story enlargement, 104 by 84 ft., and will be equipped with 200 looms. Late in 1910 the capital stock of this company was increased from $150,000 to $500,000 and the uame changed from the Calumet Mfg. Co. to the Maplecroft Mills.

South Carolina, McColl. The installation of looms to weave heavy canvas and duck is being completed by the Marlboro Cotton Mills. Heretofore this company has manufactured only yarns.

*South Carolina, Spartanburg. The large addition to the plant of the Beaumont Mfg. Co. is completed and new equipment is being installed which will give total capacity of 38,000 spindles and 900 looms. Sheetings, white and colored goods, carpet warp and twines are manufactured.

Tennessee, Humboldt. Additional new machinery is to be installed in the Humboldt Cotton Mills The company is capitalized at $100,000 and has 8,500 ring spindles, 50 broad and 190 narrow looms operated on sheetings and bag goods. W. W. Baird is president; A. R. Dodson, treasurer, and F. A. Cumnock, superintendent.

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**Mills Starting Up.**

*Alabama, Selma. The Helen Cotton Mills, Inc., will begin manufacturing March 15. This is the new company which took over the Cawthon Cotton Mill and has capital stock of $200,000. W. D. McNeill is president and buyer; Hugh Mallory, treasurer; John A. Seigler, secretary, and J. E. Gaddy, superintendent. Sheetings, shirtings, drills and ducks will be manufactured on 13,500 spindles and 412 looms.

Georgia, Albany. W. W. Pace, president of the new Albany Cotton Mills, has stated that the plant would begin manufacturing next month, employing 100 hands. It is expected that by the first of March the mill will be running full time and to full capacity.

*Georgia, Berryton. The Berryton Mills have begun spinning 8s to 30s hosiery yarns. John M. and H. R. Berry of the Rome Hosiery Mills, Rome, Ga., purchased this property, which was formerly known as the Raccoon Mfg. Co., several months ago and have rehabilitated it and equipped it for manufacturing yarn and misses' hosiery with 5,000 ring spindles and 100 knitting machines. The name of the place was changed from Raccoon Mills to Berryton.

Pennsylvania, Philadelphia. McIlwains' Diamond Mills at 1645 N. Marshall St., which have been shut down since the death of William McIlwain, have again been started up under the management of Cornelius McIlwain. The plant is operated on inner soles and shoe linings with 140 looms, the production being sold direct.

## WOOLEN.

**New Mills.**

Pennsylvania, Philadelphia. J. W. Patterson, manager of the mill operated by John Scanlan & Son, which is now liquidating its affairs preparatory to going out of business, has leased the fifth floor of the Scanlan Mill at 3d and Huntingdon Sts., in which he will install machinery for the manufacture of dress goods, men's wear, etc.

**Enlargements and Improvements.**

Connecticut, Rockville. At the annual meeting of the Rockville Worsted Co. it was decided to fill up all available space in the mill with new looms. The company does not at present know how many looms will be required. The following officers were elected: Frank E. Weeden, president; Thos. M. Corcoran, vice-president; Parley B. Leonard, secretary; Edmond Corcoran, treasurer, and Thos. Corcoran, Jr., assistant treasurer.

Maine, North Monmouth. John H. McIlroy Son & Co. are to build a new brick woolen mill on the site of the old shovel factory. The building will be 4 stories high, 300 ft. long by 70 ft. wide. The McIlroy Co. manufactures woolen bed blankets on 6 sets and 50 broad looms. John H. McIlroy is president, treasurer and buyer.

Maine, Oakland. A fire extinguisher is being installed in the storehouse of the Cascade Woolen Mill.

Massachusetts, Globe Village. The Hamilton Woolen Co. has awarded contract to E. D. Ward for an addition of brick construction, 100 by 100 ft., 4 stories high, with tar and gravel roof.

*Massachusetts, Holyoke. Samuel M. Green of Springfield has prepared plans for a new weave shed for the Farr Alpaca Co. which will be built on the site of the old mill on the west side of Bigelow St. and adjoining the Skinner Silk Mill. The old mill will be torn down before June, and the new weave shed will be erected before the end of the year.

*Massachusetts, Northboro. More looms will be purchased by the Northside Woolen Co., also a new water wheel. The new boiler has been contracted for. Union goods are produced on present equipment of 5 sets of cards and 34 looms, the product being sold through L. Bachmann & Co. and H. A. Caesar & Co. Seth A. Emery is president; Edward H. Smith, treasurer; John P. Leary, agent, and Robt. Illingworth, superintendent. The agent attends to the buying.

New York, Newburgh. A number of new looms are being installed in the plant of the Newburgh Carpet Co. Tapestry rugs are made.

Pennsylvania, Philadelphia. The John B. Stetson Co., manufacturers of felt hats and hat trimmings, who recently completed an addition to their mills at Germantown Ave. and Montgomery Ave. at a cost of $250,000, are building two other large additions, one of which will be 8 stories high, 81 by 50 feet, and the others 6 stories high, 98 by 44 feet, at an estimated cost of $80,000.

Rhode Island, Bristol. The work of building the new brick addition on the north end of the Cranston Worsted Mills is nearly finished. The principal part of the brick work has been completed and a portion of the roof is in place. The finishing of the interior is now going on.

Rhode Island, Oakland. All the looms of the Oakland Worsted Co. are being equipped with electrical stop motions.

*Rhode Island, Woonsocket. It has not been decided when the new weave shed of the Dunn Worsted Mills will be built. The plans have not been completed and no preparations for construction work have been made, in spite of local reports which state that everything is in readiness for construction work to be started and that work will soon be commenced. This will be a brick addition to be equipped with 31 new looms. E. S. Dunn is treasurer and buyer.

Tennessee, Cleveland. An addition of 20 looms will be made by the Cleveland Woolen Mills, giving them a total of 100 broad looms. The plant is being operated overtime until nine o'clock at night to fill orders and full capacity has been turned out for the past two years, not one loom having been stopped during this period. Cassimeres and worsteds are made and converted into pants. George L. Hardwick is president and W. H. Durkee, manager.

## SILK.

**New Mills.**

*Connecticut, Willimantic. Bids have been opened for the construction of the new velvet mill of the Willimantic Industrial Co., but it is understood contract has not as yet been awarded. B. F. Smith & Co. of Fall River were the lowest bidders. The proposals received were just for the construction of the building, not including plumbing, heating, sprinkler system, lighting and other equipment. As noted in previous reports this mill will be operated as a branch by the Rossie Velvet Co. of Mystic, Conn.

**Enlargements and Improvements.**

Connecticut, Putnam. A 75-h. p. steam engine has been installed in the plant of the J. A. Dady Corp., and is furnishing power for the entire mill and running a dynamo which furnishes light. An addition has just been completed and new machinery installed.

New Jersey, Paterson. It is reported the Guthrie Silk Co. is looking for space in which to combine their two plants and add additional new machinery.

New Jersey, Paterson. The machinery formerly owned and operated by the Essex Silk Mills has been purchased by Roeth & Butler and is being moved by them to the Barnert Mill on Dale Ave. It is understood an addition will be made to the plant when fully settled.

*New Jersey, Paterson. Contract has just been placed for the erection of the new mill for the Caspers Silk Co. which will be built on the Little Falls Turnpike. This was first reported about two months ago when it was stated a 4-story structure

would be erected. Ground is to be broken as soon as the weather permits.

New Jersey, Paterson. Vervat & Neeser have moved from 5th Ave. to the Ward St. Mills. Fourteen looms are operated at present, but more will be installed, according to present plans.

Pennsylvania, Philadelphia. Isaac H. Goodman of the firm of Goodman Bros. and Hinlein, manufacturers of dress trimmings at 13th and Callowhill Sts., has recently purchased properties at 12th and Wood and Pearl Sts., with a total assessment of $20,100. The dimensions of the lot are 71 by 106 feet. He will have erected an 8-story fireproof factory building after plans now being prepared by an architect and builder in this city.

Pennsylvania, Scranton. The Scranton Throwing Co. has been incorporated with capital stock of $150,000. The incorporators are Franz C. Reinhardt, holding 10 shares, J. Barclay Cooke, 10 shares and Wm. J. McFarland, 10 shares. The office of the company at the present time is in the Colt Bldg. The new corporation takes over the throwing plant of James Simpson & Co. at Scranton, and it is expected will double its capacity at an early date. The weaving machinery has been removed from this mill to the Paterson plant of James Simpson & Co.

Pennsylvania, Williamsport. Two hundred new broad silk looms are being installed in the plant of John N. Stearns & Co.

## MISCELLANEOUS.

**Miscellaneous.**

Connecticut, Jewett City. Contract has been awarded by the Aspinook Co. for the erection of a new dam, which will cost approximately $30,000.

Massachusetts, North Grafton. The new mill of the Finlayson Flax Spinning Co. has been finished and will shortly be equipped with machinery. It is two stories high, 140 by 75 feet, and was started last August.

Massachusetts, Westboro. Joseph S. Mason will occupy space in the factory building to be vacated by the Hunt Metal Corner Co., vacating the present quarters. In the meantime the machinery formerly operated in Worcester is being removed here and as much of it as possible is being set up temporarily in the present plant. When the change is completed and all the looms are set up a total of 72 looms will be operated in Westboro.

Massachusetts, Worcester. The new addition recently completed for the Worcester Bleach & Dye Works Co. will be used largely for the storage of yarns.

New Hampshire, Meredith. A fire pump has been installed in the Meredith Linen Mills.

New Jersey, Millville. The power system of the cotton bleachery of the Millville Mfg. Co. will be remodeled under the direction of Chas. T. Main, mill-engineer and architect of Boston. The present equipment, consisting of simple condensing engines driving line shafting and return tubular boilers, is to be replaced by non-condensing steam turbine and a battery of high-pressure water tube boilers. Induction motors will be used to operate the entire bleachery. The exhaust steam from the turbine is to be utilized for various bleaching processes for which live steam has heretofore been required.

*New Jersey, Somerville. The Redfern Lace Works, reported incorporated last week with capital stock of $300,000, have bought a mill here which will require very little alteration for the manufacture of laces. Fourteen Lever's lace machines have been imported from Nottingham and the work of setting these up will be started at once. This will be the same kind of plant as the American Textile Co. and Caderas & Ozanne of Pawtucket, and the Warwick Lace Works of River Point, R. I. C. E. Chapman is president; Irving E. Hance, treasurer, and Albert Redfern, vice-president and buyer. The plant will be operated by electric power.

Ohio, Carthage. A concrete factory building is to be built here by the Union Thread Co. of Cincinnati, makers of cotton sewing thread for manufacturers. A site has been purchased.

Pennsylvania, Chester. New machinery has been installed in the finishing room of the Chester Lace Mills.

*Pennsylvania, Chester. The Chester Converting Co., reported incorporated last week, will do a commission winding and quilling business, making the handling of artificial silk a specialty. The warping and balling of artificial silk will be taken up later. Space has been secured at 5th and Crosby streets, and machinery is to be installed at once.

Pennsylvania, Philadelphia. The York Finishing Works, York & Jasper Sts., finishers of hair cloth, cotton goods and moireing for the upholstery and silk trades, are removing their plant to the southeast corner of 3rd and Cumberland Sts., where they have been able to secure more room, which will enable them to increase their facilities. The plant is owned and operated by Scheiter & Schneider.

Pennsylvania, Philadelphia. David Harvey & Sons, Janney St., below Allegheny Ave., recently incorporated under and now known as the Harvey Fibre Company, converters and manufacturers of fibre floor coverings with 50 looms, are asking for estimates on plans prepared by a local architect for a new building at Janney St. and Allegheny Ave. for the purpose of enlarging their present quarters.

Pennsylvania, Philadelphia. The Fidelity Finishing Works have been removed from Mascher and Turner Sts. to Trenton Ave., below Allegheny Ave., where they have enlarged facilities and better conditions to supply the needs of the trade promptly and efficiently. They will be glad to take on additional accounts of men's wear and dress goods.

Rhode Island, Ashaway. A concern to be known as the Ashaway Dyeing & Finishing Co. has leased the Bethel Mill and it is said will be-

gin operations dyeing and finishing woolen and worsted cloths as soon as possible. Joseph D. Price, 1040 Westminster St., Providence, heads the project, and his son, Clarence Price, is a member of the company. Joseph D. Price was formerly dyer at the mill of the Ashaway Woolen Co. and it is understood this concern owns the Bethel Mill.

Rhode Island, Warwick. Work on the Phoenix Lace Mills is nearly completed and a number of lace machines have already been installed. The initial equipment will be 12 machines.

Rhode Island, Woonsocket. The Woonsocket Machine & Press Co. has awarded the contract for another large addition to their plant to the Eastern Construction Co. This is the third important addition made to this plant within the last ten years. The extra space will facilitate the increase of output of their improved roving frame and also the manufacture of an entirely new drawing frame of the very latest design, which is meeting with much praise from manufacturers. The company has also secured the right to manufacture the Boozer-Hill doffing machine for spinning frames, which has been developed at the Tacapau Mills.

## FAILURES AND SUSPENSIONS.

New Jersey, Paterson. A voluntary petition in bankruptcy has been filed by the Paterson Knitting Works, Inc. The liabilities are $35,429 and the assets $9,623. J. Schaerer is president and treasurer of the company.

Pennsylvania, Philadelphia. Creditors have filed a petition to have the Landenberger Manufacturing Co., Howard St. and Columbia Ave., manufacturers of dress goods on 100 looms, adjudged an involuntary bankrupt. The petitioning creditors and the amounts claimed by them are: Black Diamond Coal Co., $390.09; W. & R. Ford Manufacturing Co., $20,032.11 and William F. Murphy's Sons Co., $740.33. W. R. Ford has been appointed receiver. It is said that the liabilities of the concern will reach $170,000 and the assets, consisting of manufactured fabrics, $100,000.

## FACTS AND GOSSIP.

Alabama, Demopolis. It is reported on good authority that the Elmore Mfg. Co. will resume manufacturing in the near future. J. W. Sanders of the Sanders Cotton Mill Co. of Tuscaloosa, visited the plant a short time ago in the interest of local capitalists who will try to put this plant on its feet again. It is equipped for making waste yarns and was formerly known as the Bessie Minge Cotton Mill. About a year ago there was a reorganization and the plant was operated for a short time under the style of the Elmore Mfg. Co.

Colorado, Colorado Springs. According to real estate men of Colorado Springs, a cotton and woolen goods manufacturing concern plans to build a mill here and has entered into negotiations for a site at Pike's Peak and Nevada Aves.

*Connecticut, East Killingly. The International Cotton Mfg. Co., recently reported incorporated, will utilize the water privilege and other property belonging to the Bishop Mill and it is understood will make cotton wads used in cartridges. As noted previously, the incorporators are Thomas McAuliffe of Boston, W. M. Bushnell of Norwich and W. A. Guile of Providence.

Connecticut, Elmville. At the annual meeting of the stockholders of the Thistle Worsted Co. the following board of directors was elected for the ensuing year: Frank E. Holden of Woonsocket, J. B. Dunn of Woonsocket, James H Barnett of Danielson, A. Farnell of Woonsocket, J. B. Martin of Webster. Frank E. Holden is president and James H. Barnett, secretary and treasurer.

Connecticut, North Grosvenordale. The capital stock of the Grosvenordale Co. is to be increased from $2,600,000 to $3,000,000 and the charter will be amended so that shares will have a par value of $100 instead of $100,000 as at present.

Connecticut, Norwalk. Twenty-four of the 26 looms to be installed in the Dresden Lace Works are in place and the other two are expected to arrive any day. The machinery that has been started is working overtime to supply the demand for laces. This promises to become one of the most important industries in Norwalk. In time the mill will be operated night and day with two shifts of help, although at present work is continued until 8 o'clock at night. Thos. Taylor from Nottingham, Eng., is in charge of setting up the machinery.

Connecticut, Norwich. The Climax Specialty Co. has been incorporated with capital stock of $50,000 for the purpose of manufacturing metal and woolen goods. Tyler Cruttenden is secretary and treasurer. It is not known what products this new company will make as they are not ready to operate and will not give out any information.

Connecticut, Willimantic. The local mill of the American Thread Co. is running full time and to full capacity. The finishing department has been running on full time for several weeks, but the manufacturing departments were run not over three-quarters time until last week.

Georgia, Columbus. It will be only a short time before the new dam and power plant being constructed above Columbus on the Chattahoochee River is completed and ready to supply power to cotton mills and other manufacturing plants at Columbus, West Point and Opelika, many of which have already negotiated for power from the new plant.

Georgia, LaGrange. A Columbus contractor has been here to figure on building a new cotton mill. No further particulars are available, but this is understood to refer to the new Dunson Mills, organized a short time ago with capital stock of $500,000 by J. E. Dunson, president; J. M. Barnard, vice-president; T. J. Thornton, treasurer and general manager, and W. S. Dunson, superintendent. Plans for this mill are being prepared by J E. Sirrine.

Georgia, Savannah. Murray M. Stewart is agi-

tating the erection of a mill in this section to spin fine Sea Island cotton yarns.

Georgia, Statesboro. R. Simmons, J. J. Blitch and others are reported interested in a plan to build a cotton mill for spinning Sea Island cotton yarns.

Georgia, Rossville. The Park Woolen Mills will start manufacturing soon after a suspension of several months. It is likely that some new machinery equipment will be installed, although no announcement to this effect has been made.

Illinois, Rockford. The Rockford Woolen Cloth Mfg. Co. has been incorporated with capital stock of $40,000 by E. R. Reitsch, T. K. Hicks and P. J. Weingartner. It is understood the new corporation will take over and operate the mill of Dyson & Platt which was shut down early in December owing to the death of two of the partners, and the decision of Owen Platt, the remaining partner, to retire from business. The mill contains 3 sets of cards and 12 broad looms operated by water power.

Maine, Winslow. The Winslow Mfg. Co., reported incorporated at Waterville with capital stock of $10,000, will operate the old mill in what is known as Shoddy Hollow. Edward Chase, the president of the company, and A. W. Lord have been using it as an electric light station, furnishing North Vassalboro with light. This business having been taken over by the Maine Central Power Co., it is probable they will manufacture shoddy, as there is a shoddy picker in the building.

Massachusetts, Boston. The American Textilose Co. has been incorporated with capital stock of $1,000,000 to make textile fabrics. Chas. S. Grey, Walter H. Wight, Herman W. Shaw and Chas. G. Hall are the incorporators. Messrs. Grey and Shaw are in the Boston offices of the International Cotton Mills Corp., the Consolidated Cotton Duck Co., the Bay State Cotton Corp., the J. Spencer Turner Co. and the Boston Yarn Co. No information regarding the new company can be learned and it is stated that the plans will not be made public for several weeks.

Massachusetts, Clinton. There will be no change for the present in the plant of the Brodfelt Worsted Co. as the result of the purchase of the controlling interest by Albert J. Wells of Hoyoke. Mr. Wells takes charge March 1. Mr. Wells was formerly employed in the Beebe-Webber Co.'s Mills in Holyoke, starting as designer and later occupying the position of assistant superintendent.

Massachusetts, Fall River. The project to build a cotton mill at North Tiverton, which was headed by Frank Towne, is not making very great progress. The capital to erect a plant has not been forthcoming and it is said Mr. Towne has dropped the idea. It is understood that a meeting is to be held shortly to determine what can be done.

Massachusetts, Jefferson. The Jefferson Mfg. Co. has decided to start the looms in the lower weave shed. Cheviots and cassimeres are manufactured.

*Massachusetts, Lawrence. It is expected the Uswoco Mills, the large new worsted mill of the U. S. Worsted Co., will be ready for occupancy by September 1. The number of stories has not as yet been decided upon, but employment will be given to about 1,200 hands when completed.

Massachusetts, Lowell. An overtime schedule is in force at the Tremont & Suffolk Mills and some departments are working until ten o'clock at night.

Massachusetts, Lowell. Machinery is being installed in the new mill of the Massachusetts Cotton Mills on East Merrimack St. as fast as shipments arrive.

*Massachusetts, Methuen. The plant of the Marshall Worsted Co. is for sale and possible purchasers have examined the stock and machinery. The concern started in Methuen last April, removing here from North Andover, and last December made an assignment for the benefit of creditors. It is thought probable that the sale of the plant, which is located at 42 Osgood St., will be negotiated within a few days.

Massachusetts, North Adams. Reports following the announcement that a mill of 140,000 spindles is to be erected for the Berkshire Cotton Mfg. Co., give the location as the Greylock section of North Adams, and state that construction work will be started during the coming year. F. D. Sheldon & Co. are said to be completing the plans.

Massachusetts, North Adams. Men employed by Lockwood, Greene & Co., Boston, have been here looking over available sites with a view to preparing plans for a large addition to the plant of the Hoosac Cotton Co. According to a local report a mill is to be built which will increase the capacity 50 per cent., for which contracts will be let in the near future and construction work started early in the spring. At the rear of the present weave shed there is a large triangular piece of property owned by the company and on this site the new mill is to be built, according to report.

Massachusetts, North Dighton. The Harodite Finishing Co., the new concern which has leased the plant formerly occupied by the Chadwick Print Works, has organized with John J. O'Haire, president, superintendent and buyer and David Steiner, treasurer, and will begin operations March 1, bleaching, dyeing and finishing cotton piece goods. It has not been decided as yet how many hands will be employed. The Harodite Finishing Co. has capital stock of $25,000. The lease of the old Chadwick Print Work's property is for three years with the privilege of purchasing.

Massachusetts, Pittsfield. The Berkshire Woolen & Worsted Co. will operate its weave room night and day, having received orders which it is said will necessitate this schedule for several months. This company recently took over the woolen mill of J. L. & T. D. Peck Mfg. Co., which had been idle for some time.

Massachusetts, Spencer. The Priscilla Woolen Co. has resumed full time, after being on a short-time schedule for several months.

*Massachusetts, Taunton. The Old Colony Mfg. Co., incorporated early in January with capital stock of $200,000, as noted, is a reorganization of the Elizabeth Poole Mills. The officers are Henry M. Lovering, president and treasurer, and Henry H. Culver, clerk. These men with J. H. Webber are the directors. The same grade of goods will be manufactured as were made by the old company and the business will continue as heretofore. Previous to the reorganization the officers were as follows: Geo. M. Preston, president; Henry M. Lovering, treasurer; F. H. Gooch, agent, and H. H. Culver, superintendent. The capital stock was $100,000.

Massachusetts, Webster. Henry Merritt has purchased the plant occupied by the Merritt Woolen Co., together with the company's assets and liabilities and will be proprietor, superintendent and buyer. The equipment consists of 3 sets of cards and 19 looms on which woolens and worsteds are manufactured. Thos. E. Curry & Co., New York, are the selling agents.

New Hampshire, East Rochester. It is reported that the Cocheco Woolen Mfg. Co. has received orders which insure operating more of the machinery for several months.

New Hampshire, Milford. While there have been a number of reports of late that the equipment of the Middlesex Linen Co. would be moved to some other place, nothing has been done in this direction and the machinery is still lying idle here. A new rumor is to the effect that a new company is to be organized to operate the plant here.

New Hampshire, Salmon Falls. The carding and spinning rooms of the Salmon Falls Mfg. Co. will be run at night for a time and the weaving room in the day time. The carding and spinning departments are run by electrical power and the weaving department by water power.

New Jersey, Burlington. The new plant of the Burlington Silk Mills, Inc., has been started up with 300 employes. New looms will be installed until the total number of hands employed reaches 500.

New Jersey, Little Falls. The Somerset Carpet Mills have been incorporated with capital stock of $2,000 to manufacture carpets. The incorporators are Samuel Starr, Alexander J. Bimberg, Louis J. Bimberg and Wm. G. Hockrige.

New Jersey, Newark. The W. & S. Co. has been incorporated, with capital stock of $50,000, to manufacture elastic webbing, hooks and eyes and similar goods. The incorporators are Benj. B. Sager, John Freeman and Oscar Sager, all of Newark. Lafayette A. Wilkinson of Philadelphia is largely interested. The corporation will be located at 763 Broad St., Newark.

New Jersey, Passaic. The American Buckram Co. has been incorporated, with capital stock of $100,000 to manufacture cotton cloths. The incorporators are Chas. A. Bergen, Albert O. Miller, Jr., Grace M. Getty, all of Passaic. An office will be located at 215 Hobart Trust Bldg., Passaic.

New Jersey, Paterson. A charter has been granted the Calumet Silk Co. with capital stock of $100,000 to manufacture silk goods. Wayne Dumont, a local attorney, is one of the incorporators and states that a new plant is to be started, but no particulars of the proposed plant or of the persons interested can be made public at this time.

New Jersey, Paterson. J. S. Scheff & Co. has been incorporated with capital stock of $25,000 to manufacture and dye silk goods. The incorporators are Jonas S. Scheff, 130 Greene St., New York, and others. The company will locate at 350 Belmont Ave., Haledon, N. J.

New Jersey, Paterson. It is rumored locally that an addition to the Pope Mill will be made this spring. The Queen Silk Co., American Shawl Co. and the Berlin Shawl Co. occupy space in the Pope Mill and it is said will increase their machinery equipment, but not before June or July.

New Jersey, Phillipsburg. A new silk mill is to be located here nearly opposite the Continental Silk Mills. A 2-story brick building is to be erected under the direction of Engineer Howell of this place. Plans have been held up temporarily owing to the withdrawal of one of the men interested, who is a practical silk man. Phillipsburg and Paterson men are interested.

New York, Amsterdam. It is reported that the Philadelphia stockholders of the Consolidated Woolen Felt Mills, which were recently destroyed by fire, are against rebuilding the plant and operating it in this city; their intention being to erect a new plant to cost about $150,000 in another section of the country. John Stansfield, the manager of the plant, states that in the event of the mill leaving Amsterdam it is his intention to equip a plant of his own and start it up on the same line of goods.

New York, New York City. A charter has been granted Leonard Shoenfeld & Co. with capital stock of $20,000 to manufacture and deal in woolen and cotton goods. Leonard Shoenfeld is a wool importer with an office at 71 Wall St.

New York, New York City. At a meeting of the Rogers, Thompson, Givernaud Co. the following officers were elected: John Bister, president; Mont D. Rogers, Loren O. Thompson, Celistino Piva, vice-presidents; Richard H. Fraenckel, treasurer; Thos. A. Kennedy, assistant treasurer and secretary, and Chas. A. Newkirk, assistant secretary. Messrs. Piva and Kennedy were president and secretary of Givernaud Bros. which firm has been consolidated with Rogers & Thompson Silk Mills to form the new company. All the mills operated by the two concerns which contain in all about 1,600 looms, have been taken over by the new company and it is stated other looms will be added to increase the total to 2,000 looms. The New York office will be moved to the Ashland Bldg., 4th Ave. and 24th St., which has been leased for a long term of years.

North Carolina, Concord. In spite of numerous reports to the effect that the Roberta Mfg. Co. will rebuild its plant, recently destroyed by fire, it is hardly probable that this will be done. At the present time at least no movement will be made in this direction and there are no plans for rebuilding.

*North Carolina, Elizabeth City. There will be no change for the present in the plant of the Elizabeth City Cotton Mills, the issue of bonds previously noted being for the purpose of refunding outstanding bonds and to provide additional working capital.

North Carolina, Lexington. The Wennonah Cotton Mills Co. has been granted a charter with capital stock of $125,000 by Wm. E. Holt, Wm. E. Holt, Jr., and J. V. Moffitt. The new corporation takes over the Wennonah Cotton Mills, of which W. E. Holt was proprietor. The plant contains 12,000 ring spindles and 450 looms for making white and colored goods and yarns.

North Carolina, Lexington. The capital stock of the Dacotah Cotton Mills, Inc., has been increased from $150,000 to $200,000.

*North Carolina, Lowell. It is unlikely that the new 10,000-spindle cloth mill of the Lowell Cotton Mills will be built this spring, although plans are receiving consideration.

North Carolina, Randleman. On March 28 the property of the Randleman Mfg. Co. and the Naomi Falls Mfg. Co. will be sold on the premises. The terms will be one-third cash and the remainder in two equal installments at two and four months. Both concerns were adjudged bankrupt last December and F. H. Fries of Winston-Salem and T. A. Hunter of Greensboro, were appointed receivers. Both companies were under the same management.

*Oklahoma, Ardmore. T. W. Garbutt, president of the Fitzgerald Cotton Mills, Fitzgerald, Ga., who has previously been reported interested in a plan to build a cotton mill at Ardmore, states that there is no truth in the report. He addressed a meeting in the interest of the Ardmore Booster Club which is promoting the enterprise, but has no connection with it in any way.

Oklahoma, Shawnee. It is planned to call the proposed new cotton mill company the Shawnee Cotton Mills when it is formed and to have capital stock of $250,000. W. B. Smith Whaley has been selected for president and J. L. Ford, treasurer.

*Pennsylvania, Allentown. The plant of the Keystone Textile Co., incorporated last September, will be in operation shortly.

Pennsylvania, Kutztown. The building and equipment of the Hill Silk Mfg. Co., consisting of 130 looms, and the Merchants' Silk Company, located at Maxatawney, near this town, were recently sold to parties in Kutztown.

Pennsylvania, Lehighton. The plant of the Lehighton Ribbon Co. has been sold by Peter Campbell, the proprietor, to the Fairview Silk Co. of Allentown, Pennsylvania, and the machinery equipment has been removed to the plant of the Fairview Co. at Rittersville.

*Pennsylvania, Mahanoy City. Investigation has failed to reveal any particulars of the rumored project to establish a silk mill in Mahanoy City. Nothing seems to be known about it in quarters where information should be had if there were anything in the rumor. The previous report stated that a $30,000 silk mill would be established here if a suitable site could be secured.

*Pennsylvania, Milton. No definite information can be learned of the new silk mill project headed by Sydney H. Souter, formerly head of the Sydney H Souter Silk Co. It is understood that the establishment of a new mill has not been fully decided upon.

*Pennsylvania, Norristown. Bernstein, Kaufman & Co. of Philadelphia, who are interested in the Art Fibre Co., advise that the American Artificial Silk Co., recently organized for the manufacture of artificial silk, will succeed the Art Fibre Co., as reported previously, and will build a 5-story mill in Philadelphia. The new organization is at present only in a state of formation and the names of officers cannot be given at present. Bernstein, Kaufman & Co. are manufacturers of millinery, cloak and dress trimmings at 1017-19 Race St., Philadelphia.

Pennsylvania, Philadelphia. The Lafayette Mills Co., of which P. J. Masterson is the proprietor, operating 30 looms on Turkish towels and novelties, now located in the Bromley Mills at Jasper and York Sts., is arranging for the removal of the plant to the Lockhart Mills at Howard St. and Lehigh Ave., where the entire second floor and part of the first floor has been leased.

Pennsylvania, Philadelphia. An application will be made for a charter for the Valkone Dye & Finishing Works, with Thomas D. Sullivan, Howard K. Hall and Edward S. Keyser as incorporators. The plant will be located at Mascher and Turner Sts., where piece goods will be dyed and finished.

Pennsylvania, Philadelphia. Walter T. Sykes of Sykes Bros., spinners of woolen yarns at Hancock and Huntingdon Sts., has recently purchased from the Angola Dyeing Co. the building formerly occupied by them at the N. E. corner of Hancock and Huntingdon Sts. which is four stories, of brick. The mill will be equipped with the worsted spinning machinery recently purchased by Sykes Bros., at the sale of the late Frank B. Birch & Son, who were declared bankrupts some time ago. The plant consists of 2 cards, 2 combs and 2,000 spindles which are operated on the English system on carpet yarns.

Pennsylvania, Philadelphia. By order of the receiver, J. H. Thomas, the machinery and equipment of the mill of the Hall-Taylor Co., at 2739 N. Fairhill St., will be sold out at public auction on February 28. The plant contains 30 broad and 22 narrow looms which they operated on men's wear and dress goods.

Pennsylvania, Philadelphia. William Ford, re-

ceiver in bankruptcy, has ordered the sale of the Landenberger Manufacturing Company, Howard St. and Columbia Ave., on March 7. This plant, which is one of the best equipped in this locality, contains 100 broad looms and other machinery used in the manufacture of fine worsted goods for women's wear.

Pennsylvania, Philadelphia. Wolfgang Richter, the well known manufacturer of full fashioned knitting machines at 535 Lawrence St., reports that he is very busy both in building new machines and in his repair department.

Pennsylvania, Philadelphia. The co-partnership heretofore existing between Wm. A. Reinecke and Joseph Graham, trading as the Quaker Dye & Bleach Works, has been dissolved. The liabilities will be paid and all assets collected by Joseph Graham, who continues the business under the same name.

Pennsylvania, Philadelphia. It is reported that the Penn Worsted Co., which went into the hands of a receiver on October 15, has been reorganized, New York and Philadelphia capitalists being identified with the transaction. The name under which the company will operate in the future is the Penn Worsted Co. of Pennsylvania. Worsted fabrics and specialties in silk yarns, silk resists and twists will be manufactured as in the past. The equipment includes 40 broad looms, 6,000 worsted and 3,000 silk spindles.

Pennsylvania, Philadelphia. Jos. J. Sheiter & Co., manufacturers of hair cloth and converters of textiles for the upholstery and clothing trades, operating 71 hair cloth and 5 jacquard looms, and 30 narrow looms on serges, have removed their plant from Jasper & York Sts. to new quarters at 3rd & Cumberland Sts., where they have taken over a portion of the mill formerly occupied by John Scanlin & Sons.

Rhode Island, Harrisville. Ernest W. Tinkham petitioned the court for the dissolution of the Royal Worsted Mills and for a receiver to wind up the business. Judge Tanner denied the petition on the ground that the evidence failed to show that the corporation was insolvent. Mr. Tinkham is a stockholder. The mill was closed some time ago.

Rhode Island, Hope Valley, Simon and Hermon Rawitser have purchased the Savin A. Owen mill property, including buildings, machinery, water rights and 12 tenement houses. The property is assessed for $35,000. This is the mill at present leased by C. S. Taylor and operated by him on cotton worsteds and cassimeres. As noted previously, Mr. Taylor and M. Bell have leased the Cyrus G. Wood plant at Quinapoxet, Mass., and expect to begin manufacturing there about March 10.

Rhode Island, Lymansville. The capital stock of the Lymansville Co. will be increased from $500,000 to $1,000,000.

Rhode Island, Niantic. Rufus W. Sprague, Jr., of New York, has bought a large tract of land in Niantic and is reported to be acting in the interests of the Bradford Dyers' Association, Ltd., which recently purchased the property of the Niantic Dyeing Co. It will be remembered that the Bradford Dyers' Association, Ltd., is to build a large dyeing, bleaching and finishing plant at Niantic, and has been negotiating for some time for large tracts of land in this vicinity with water rights on the Pawcatuck River.

Rhode Island, Valley Falls. The Hesse Mfg. Co. has moved into its new mill erected last fall. The new structure is 48 by 160 ft. of reinforced concrete construction, 2 stories high.

Rhode Island, Westerly. It is reported that a manufacturer is negotiating for the large brick building on Main St., formerly occupied by the Solway Mills. Henry and Wm. R. Segar are the owners.

Rhode Island, Woonsocket. Judge Brown in the U. S. Court ordered the sheriff's sale of the property of the American Narrow Fabric Co. stopped. The order was issued on the representation of the creditors that the concern should be adjudged bankrupt and that the sale under an attachment would constitute a preference of creditors. Henry C. Hubbard, who died several weeks ago, was treasurer of the concern.

Rhode Island, Wyoming. The Wyoming Yarn Co. has been incorporated with capital stock of $27,000. Edward Tillinghast, Charles L. Kenyon and E. R. Tillinghast are the incorporators. It is understood the new corporation takes over the business of the Wyoming Yarn Co.

*South Carolina, Anderson. No additional equipment will be installed in the plant of the Riverside Mfg. Co. at this time, the company continuing with the same equipment. The object of increasing the capital stock from $225,000 to $401,250 is to relieve the company of its indebtedness and to give it working capital. Capt. Ellison A. Smyth has been elected president and treasurer and C. M. McClure, secretary.

*South Carolina, Easley. Within a few weeks the Alice Mills will be in full operation, 20,000 spindles and 500 looms having been installed, 250 looms have been started. The mill building is 3 stories high, 336 by 108 ft., with warehouse, 3 stories high, 60 by 100 ft. The mill is equipped with electric power for driving all the machinery except the slashers, which are driven by a steam power plant. E. H. Shanklin is president and treasurer.

*South Carolina, Great Falls. Nothing authoritative can be learned regarding the time of starting work on the second unit of the Republic Cotton Mills. The first unit, comprising a plant of 25,000 spindles and 600 looms, has been completed and will be started up about March 1. It is considered improbable that any enlargement will be made until the present mill is in good running condition. The capital stock is $600,000. Robt. S. Mebane is president; T. B. Fuller, vice-president, and H. B. Mebane, secretary and treasurer.

*South Carolina, Greenville. A prospectus has been issued by the Parker Cotton Mills Co. giv-

ing information of the plans of the company and of the nine mills to be consolidated. The capital stock will be $10,000,000, classified as guaranteed, preferred and common stock. It is proposed to issue at present $2,000,000 of the guaranteed stock to pay off a part of the debts of the independent mills and to give working capital. Arrangements have been made for the sale of this stock at par. It will be entitled to dividends of 7 per cent., payable quarterly, and is subject to retirement on any dividend date at $120 per share. The preferred and common stocks also will be used in retiring part of the debts of the separate corporations. The prefered stock will be entitled to a cumulative dividend of 6 per cent. and will be convertible into common stock, share for share, but the holders of the common stock may terminate this privilege on six months' notice. The board of directors will be composed of the following men who are largely interested: John Kerr Branch, of Thomas Branch & Co., bankers and brokers, Richmond, Va.; Edwin P. Frost, of Henry W. Frost & Co., Charleston; H. J. Haynsworth, attorney at law, Greenville; R. F. Herrick, of Fish, Herrick, Richardson & Neave, attorneys at law, Boston; Thomas Motley, of Curtis & Sanger, bankers and brokers, Boston; Lewis W. Parker, Greenville; Thomas F. Parker, president of the Monaghan Mills, Greenville; Edwin W. Robertson, president of the National Loan and Exchange Bank, Columbia, and R. P. Snelling, Saco-Pettee Co. As noted in an earlier report, the officers will be Lewis W. Parker, president; Thomas F. Parker, vice-president; Alex. Macbeth, treasurer, and M. M. Trotter, Jr., secretary.

Tennessee, Chattanooga. C. Husbands and a Dr. Winston of Paducah, Kentucky, are planning to organize a company at Chattanooga to manufacture waterproof cloth.

Tennessee, Chattanooga. The Bowen-Jewell Co. has been incorporated with capital stock of $200,000 to manufacture cotton goods. The incorporators are W. L. Bowen, D. A. Jewell, A. S. Bowen, J. B. Cody, L. M. Carr, Geo. Bradley. The Bowen-Jewell Co. operates the Jewell Cotton Mills, Jewell, Georgia and the Crystal Springs Bleaching Co., Chickamauga, Ga.

*Tennessee, Shelbyville. Little is known of the project to establish a weaving mill in Shelbyville to use a part of the output of yarns of the Sylvan Cotton Mills. W. J. McGill, treasurer of the Sylvan Cotton Mills is actively interested, but it is understood little progress has been made since the matter was first considered in December. It is not known whether a separate new company will be organized or whether the weaving plant is to be a department of the Sylvan Cotton Mills.

Tennessee, Trimble. It is reported a movement is on foot for the establishment of a cotton mill here which will give employment to about 75 hands. It is said that a proposition has been submitted to local business men by a man who will take most of the stock and manage the business.

Texas, Austin. The Texas legislature is considering an appropriation of $150,000 to establish a cotton factory at the Rusk Penitentiary.

*Texas, Paris. Nothing has been done as yet toward forming any definite plans in regard to the location of a cotton mill here. The Paris Progressive Club, which is agitating the matter, states that they are going to have a cotton mill, but are not in a position to say at present when and how this will be done. They assert that sufficient capital can be raised in Paris without any outside help.

*Texas, Waco. Little progress has been made by the Young Men's Business League in their effort to organize a company to build a cotton mill. They are going ahead, however, with the project and hope to interest sufficient capital or to arrange for some manufacturer to come here.

*Texas, Wichita Falls. H. A. Emerson and J. A. Kemp, previously reported interested in organizing a cotton mill company, are trying to interest experienced cotton manufacturers in the enterprize and they hope to arrange for the organization of a $100,000 company.

*Virginia, Basic City. Officers have been elected by the Basic City Woolen Co. as follows: Hiram Dawson, president and general manager; W. H. Gardner, treasurer, and M. E. Bean, secretary. This company began manufacturing last November, taking over the Blue Ridge Woolen Mill. Recently the business was incorporated with authorized capital of $75,000, of which $50,000 has been paid in.

Virginia, Fredericksburg. Efforts are still being made to secure the return to this city of the Melville Woolen Co. which removed to Chambersburg, Pa., when their plant in Fredericksburg was burned last September and purchased the old Chambersburg Woolen Co. plant. It is said the Melville Co. has entered into negotiations for establishing a plant at Fredericksburg provided the business men can offer suitable inducements. The manufacturing committee of the Business Men's Association has the matter in charge.

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**Mills Starting Up.**

*Illinois, Rockford. E. R. Reitsch, T. K. Hicks and Philip Weingartner, the incorporators of the Rockford Woolen Cloth Mfg. Co., are the men who control the concern. They have taken over the plant of Dyson & Platt and will operate it on under collar cloth. The plant contains 3 sets of cards, 1,240 spindles and 12 looms. Organization has not been completed as incorporation papers have not been received, but Philip Weingartner will be superintendent and buyer. The product will be sold through Curtiss & Warren.

Utah, Provo. Wm. U. Hanke, the new superintendent of the Knight Woolen Mill, has arrived from Davenport, Ia., with his family and will at once begin preparations for starting the mill. The exact time manufacturing will be resumed cannot be stated at present as some changes are to be made, although these ought to be completed within a month.

Wisconsin, Chippewa Falls. The Chippewa Falls Woolen Mill will soon resume operations, as fair orders are being received.

## New Publications.

**[Any work noticed under this head can be obtained through the office of this journal.]**

The Chemistry and Practice of Sizing; A Practical Treatise on the Sizing of Cotton Yarns, Size Mixing, Tape Sizing, Ball or Warp Sizing and Hank Sizing; by Percy Bean, F. C. S., M. Ph. S. and F. Scarisbrick; 9th edition; 641 pages, 5 by 8 1/2; Lord & Nagle Co., 144 Congress St., Boston, Mass. Price $10.

This is the 9th edition of a book which has become a standard work in the textile trade of English speaking countries. The first edition appeared in 1903 and was quickly exhausted, as were the seven editions that followed in succession. This, the 9th edition, has been brought up to date and valuable material added, including a chapter on the ventilation of humidified weave sheds, Mr. Scarisbrick being an expert on this question. The work, which is freely illustrated, is divided into sixteen chapters, as follows:

1. Substances for Giving Adhesive Properties to the Size.
2. Materials Used for Giving Weight and Body to the Size and Yarn.
3. Ingredients Used to Soften the Size and Yarn. Oily and Greasy Substances.
4. Soap.
5. Deliquescent Substances Used for Softening and for Giving Weight and Strength to the Yarn
6. Ingredients Used for Preserving Size from Mildew.
7. Size Mixings.
8. Tape Sizing.
9. Ball or Warp Sizing.
10. Hank Sizing and Bleaching.
11. The Preparation of the Yarn for the Process of Weaving.
12. The Physical and Chemical Properties of Cotton.
13. The Analysis of Sized Grey Cloth.
14. Damage to Which Sized Cloth is Liable, Mildew and Iron Stains.
15. Bleaching.
16. The Ventilation of Humidified Weaving Sheds.

Fibers Used in Textile and Allied Industries; by C. Ainsworth Mitchell, B. A., F. I. C., and R. M. Prideaux, F. I. C.; 190 pages, 5 by 8 1/2; D. Von Nostrand Co., New York. Price $3.

The authors of this book have for many years been independently engaged in the technical examination of fibers and they have prepared this volume in order to put a description of microscopical and chemical technical methods into a form convenient for use in the laboratory. The following abstract of the table of contents shows the scope of the work, which contains numerous and excellent illustrations: Wool, Silk, Cotton, Mercerized Cotton, Artificial Silks, Linen and Ramie, Jute and other Fibers, Brush Fibers, Vegetable Downs and Upholstery Fibers.

Worsted Preparing and Spinning; by M. M. Buckley and F. Buckley; 257 pages, 4 1/2 by 7; F. King & Sons, Ltd., Halifax, England. Price $1.50.

This work consists of the series of articles published in the "Textile Manufacturer," Manchester, England. It was the original intention of the author, M. M. Buckley, to have them appear in book form. After Mr. Buckley's death the publishers engaged Prof. Fred Bradbury of Belfast to complete the work. The result is an excellent handbook of worsted spinning. Part 1 treats of the raw materials. Part 2, wool classification, washing and drying. Part 3, worsted preparing and Part 4, worsted carding.

## Business Literature.

Treatise on Testing Textiles; Szepesi & Farr, 141 Milk St., Boston, Mass.

This attractive catalogue of 60 pages contains illustrated descriptions of a large number of useful appliances for testing textiles, manufactured by the well known firm of F. R. Poller, Leipzig, Germany, for whom Szepesi & Farr are the sole American agents. The list includes yarn testers for strength and elasticity, count testers, Staub's universal yarn balance, roving scale, scale for determining weight of cloth, roving reel, yard reel, and various types of yarn reels. An oven and other necessary apparatus for conditioning textiles are described, also cloth measuring machines, yarn inspecting table, twist counter and universal thread counter. Each instrument and machine is illustrated. There are also a number of useful yarn tables in the catalogue, a copy of which should be on file in every textile mill.

Leather Belts; J. E. Rhoads & Sons, Philadelphia, Pa.

An attractive booklet, illustrating a piece of laced belting and the beginning of Rhoads Leather Belts in 1701. The book gives a description of the different kinds of belting manufactured by the J. E. Rhoads & Sons Co., and illustrates good belts of various descriptions: flat, round, endless, rubber, rivetless, cotton duck, etc., also sundries, such as rawhide rope, valves and washers. It gives valuable information about the care of belts, belt preservatives, and how to make belts endless. One of the interesting features of this book is the revised list of rubber belts, adopted in May, 1910, by the mechanical rubber goods associations. The catalogue includes a convincing statement of why service is the Rhoads standard for good belting.

Friction Clutches and Speed Changes; The White & Moore Co., Philadelphia, Pa.

Owing to the many applications of friction clutches and the need of changing speeds in the operation of textile machinery, this book will prove of special interest to textile manufacturers. The construction of the Moore & White clutches is described with the aid of many excellent drawings and half tone illustrations. A price list for pulleys of various sizes is also given. There are also complete price lists for pulleys of different sizes, for couplings, shafting, sole plates, ring oiling bearings and cast iron pulleys.

De Laval Steam Turbines; The De Laval Steam Turbine Co., Trenton, N. J.

A catalogue of 120 pages illustrating and describing the various types of De Laval turbines.

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How a Revolvator Saves Time, Money and Space; The New York Revolving Portable Elevator Co., Jersey City, N. J.

A 15-page booklet describing and illustrating the revolvator or portable tiering machine. It also gives a list of forty-seven of the first purchasers of this machine.

## Finishing Material.

The Arabol Mfg. Co., 100 William St., New York, make a specialty of soluble oils, alizarine assistants and turkey red oils for use in finishing, dyeing, printing, etc., as well as sizing and finishing compounds for textile goods of every description. Their extensive factories in Brooklyn, well equipped with up-to-date laboratories and under expert and scientific management, can meet any demand.

## Seydel Mfg. Co. Enlarges their Plant.

The Seydel Mfg. Company of Jersey City, in order to keep pace with its steadily increasing sizing, soap and softener business has leased additional buildings where it is placing up-to-date machinery. With these additional facilities the working capacity of the concern will be more than tripled. Although this concern has been located in the East but about eighteen months, coming from Atlanta, Ga., the products put out by the Seydel Bros. have taken a firm hold upon the market, and their success is constantly increasing.

The Elmira Cotton Mills of Burlington, N. C., have been using Sizol "L" for the past four years and the letter which they recently wrote to the Seydel Mfg. Co. is a strong commentary on the excellence of this product:

Seydel Mfg. Co., Jersey City, N. J.

Gentlemen: As I have been using your Sizol "L" continuously for the last four years, I feel that I am due you a voluntary testimonial in regard to the results I have had from same.

I wish to say that I have used this Sizing on Ginghams and Domets, and the results have always been very satisfactory. I have on one or two occasions tried a barrel or so of other goods, just to see if I was getting the best results that could be expected, but in each case, experience has proven that your Sizol "L" gives best results in every respect. I also wish to say that I have always noticed that every barrel seems to come up exactly alike in appearance; this fact, of course is a good deal of satisfaction to us, as we can feel that we are getting the same grade of goods all the time.

I will also say that we have used this same Sizol "L" in our finishing with very satisfactory results on ginghams, etc.

Wishing you continued success in the sizing business, I beg to remain,

Yours respectfully,

J. G. King, Supt.
Elmira Cotton Mills.

## Liquid Chlorine.

This product has attracted the favorable attention of manufacturers and bleachers. It is a chlorine gas in the liquefied state, under pressure, in its purest form, manufactured by the Electro Bleaching Gas Company, 24-26 East 21st St., New York, who claim, among other things, that it eliminates settling, also danger of chlorination of fiber, reduces washing, and gives positive and easy regulation of the strength of the bleach-liquor. It comes in steel cylinders, convenient to handle, and just the right amount is available by the mere turning of a valve.

## The Diesel Engine.

A new company was incorporated in January under the name of the Busch-Sulzer Bros.-Diesel Engine Co., to build and sell the well known Diesel oil engine. The business has been carried on previously as an individual enterprise of Adolphus Busch, purchaser of the American Diesel engine. The capital stock is $2,100,000 and the board of directors consists of eleven members, headed by Adolphus Busch as president and August A. Busch, first vice-president, James R. Harris, second vice-president and general manager. Other members of the board include E. D. Meier, president of the American Society of Mechanical Engineers, and Rudolph Diesel of Munich, Germany, the inventor of the engine.

In the near future, the company will erect a modern plant completely equipped to build the engine. The estimated cost of the plant is about $1,000,000. They will employ 500 men to start and the works will be laid out in such a manner as to be easily enlarged as business demands. The location has not been definitely settled upon, but it will probably be in St. Louis if it is found that an adequate supply of high class mechanical labor can be obtained there.

Adolphus Busch has been interested in the Diesel engine business since the Diesel engine was invented by Rudolph Diesel, an engineer of Munich, Germany, and who is to be one of the directors of the new company. As far back as 1897, when Mr. Busch bought the basic patents for the United States of America and Canada, he saw the great future of the engine, although it was then in the embryo stage, having just been invented and not a commercial article. On May 10, 1909, Adolphus Busch bought the assets of the American Diesel Engine Co. and transferred the business of the company from New York to St. Louis. The business has since been managed by James R. Harris, under the close direction of August A. Busch and has been very successful. European manufacturers who had acquired rights from Mr. Diesel for their countries have spent fortunes in perfecting the Diesel engine and now have the engine developed to such an extent that the sales are enormous.

The old American Diesel Engine Co. brought their type of Diesel engine to a very high state of perfection so that the engines now being manufactured by Adolphus Busch, purchaser of American Engine Co., are giving the greatest satisfac-

tion to its users throughout the United States. This is well demonstrated by the fact that the present company being conducted by Mr. Busch had sold over eleven thousand horse power of the type of Diesel engine during the last sixteen months and could have sold more if the company had had the proper facilities for turning out the engines.

Max Rotter, the present Chief Engineer of the Allis-Chalmers Co., has been engaged as the Chief Engineer of the new company. Mr. Rotter will have carte blanche to surround himself with men who are especially adapted to the particular work to which they will be assigned, and has instructions to get the best wherever they may be found.

The Diesel engine is an internal oil combustion engine and is built both as a two cycle and as a four cycle engine. Ordinary crude oil is used for fuel and the method by which this fuel is used in connection with the engine is simple and radically different from that of other types of power. There are no boilers, neither is the fuel used as is gasoline in the automobile engine, although the operation in the latter case is somewhat similar. In the Diesel method of combustion, however, there is no annoying "mixture," neither is there any "spark" or other mechanical or electrical device to cause trouble. The cylinders of the engine (in which the power is developed and applied through the pistons and rods to the driving shaft) contain nothing but air until the "compression" stroke has been completed, and until the temperature which results from this compression is more than sufficient to ignite the fuel. The fuel is atomized by air into an extremely fine spray and is introduced into the cylinder at a rate which does not permit of an explosion, but generates a steady pressure on the piston as does the steam in a steam engine, the quantity being regulated directly by the governor in proportion to the load on the engine.

The average experience of users of Diesel engines in this country show that the fuel cost of operating an ordinary steam plant is cut down fully two-thirds where Diesel engines are used. Records kept by users of Diesel engines show that the average Diesel engine in service develops one hundred horse power for an hour's time on six one-half gallons of oil. A further saving of great importance is thev elimination of labor necessary in a steam plant for firing, cleaning and repairing boilers, and handling coal and ashes. It is to be noted, then, that the cost of this extra labor in the steam plant has been shown in several cases to be actually sufficient to pay for all the fuel consumed by an equivalent Diesel installation. A kilowatt hour for one-third cent is the average daily record of every electrical plant driven by an American Diesel engine. This is based on a cost of three cents per gallon for crude or fuel oil. A number of textile mills have installed the Diesel engine with much satisfaction, and additional units have been ordered. The present offices of the company are in the South Side Bank Building, St. Louis, Mo.

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Wisconsin, Milwaukee. It has been decided to increase the capital stock of the Everwear Hosiery Co. from $100,000 to $250,000.

### Enlarging Works and Product.

The Woonsocket Machine & Press Company of Woonsocket, R. I., have awarded a contract for another large addition to their plant to the Eastern Construction Company of Rhode Island. This new addition is the third large one which has been added to the manufacturing plant of this progressive company in the last ten years. This is a fitting testimonial to the high quality of the machinery which they turn out. The extra space will be devoted to increasing the output of their popular roving frame with its patented improvements, and also to the manufacturing of an entirely new drawing frame of the very latest design which is meeting with praise at every hand.

This company has also secured the right to manufacture the Boozer & Hill doffing machine for spinning frames and a large market is looked for for this ingenious machine which was developed to its present stage at the Tucapau Mills, Tucapau, S. C. A speed of from 100 to 125 bobbins has been obtained by this machine.

### Decision for the Jordan Machine.

The Jordan Machine Co. of Cohoes, N. Y., have recently obtained a decision favorable to their company in the case of Palmer versus the Jordan Machine Co., relative to an alleged infringement regarding their patent pipe loading machine for roll turner or horizontal driers. The termination of this suit will be of interest to a large number of knit goods manufacturers that invert or dry goods in the roll. This machine is illustrated in another section of this issue.

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The Dexter Engineering Co. of Providence, owning and operating the Dexter vacuum system of steam heating and ventilating for the utilization of waste steam and vapor, have opened a New York branch at 1 Madison Ave., in chargeof David H. Cuyler.

### Color Cards.

Shades for Garment Dyers; Kalle & Co., New York City.

Eighteen samples dyed with Union dyestuffs which color wool, cotton and silk the same shade in one bath and in one operation.

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Fast Mono-Chrome Colors for Men's Wear; Kalle & Co., New York City.

Sample card showing twenty-eight samples of worsted piece goods showing the fast shades obtained by using Mono-Chrome colors.

---

Fast Union Colors for Men's Wear; Kalle & Co., New York City.

Sample card showing twenty-one samples of cotton worsted goods dyed with Fast Union colors. Full dyeing directions are given.

---

Navy Blues and Blacks for Men's Wear; Kalle & Co., New York.

Twelve samples of worsted piece goods.

# Recent Textile Patents.

DYEING LOOSE Material. Apparatus for. Waldemar Berger, Hoechst-on-the-Main, Germany.

FIBERS DYED with Vat Dyestuffs. Bucking or Bleaching. 983,951. Friedrich C. Theis, Hoechst-on-the-Main, Germany.

KNITTING MACHINE Looping Device. 983,757. Erastus R. Olmsted, Saratoga Springs, New York.

KNITTING MACHINE Attachment. 982,238. James H. Brinsley, Mankato, Minn.

KNITTING MACHINES. Cam for Rib. 983,777. Robert W. Scott, Leeds Point, N. J.

LOOM TAKE-UP Mechanism. 982,390. Alonzo E. Rhoades, Hopedale, Mass.

LOOM STOP Motion. Velvet. 983,030. Joseph B. Derfinak, Mystic, Conn.

LOOMS. Glass-bar-bracket Mechanism for. 983,020. Frederick Benz, Jr., Haledon, N. J.

LOOM. 982,862. Ivan L. Peterson, Burlingame, Cal.

LOOM. Narrow Ware. 982,464. Frederick Benz, Jr., Haledon, N. J.

LOOMS. Bobbin Stripper for Filling Replenishing. 982,741. Severin N. Paquette, Lowell, Mass.

SHUTTLE MECHANISM. 982,548. Bruno H. Theisen and George S. Keller, Minneapolis, Minn.

SHUTTLE RACE Cover. 983,739. Michael McCaffrey, Tonawanda, N. Y.

SHUTTLE EYES. Blank for Self-threading. 983,435. Charles Glover, New Britain, Conn.

SEWING MACHINE Embroidering Attachment. 983,193. Maurice Ackerman, Washington, D. C.

SPINNING MACHINE Bobbin. 983,973. Arthur H. Briggs, Bradford, England.

SPINNING MACHINE. 983,609. Ezra Dixon, Bristol, R. I.

STITCHING MACHINES. Pull-off Meechanism for. 982,547. Bruno H. Theisen ond George S. Keller, Minneapolis, Minn.

SPINNING and Twisting Machine. 983,607. Frederick S. Culver, Taunton, Mass.

SPINNING and Doubling Machine Spindle. 984,043. William T. Smith, Bolton, England.

SPINNING MACHINE Twister Head. 983,641. Durell O. Pease, Hampden, Mass.

SPINNING and Doubling Frame Guard. 982,667. James Gregory, Burnley, England.

WARP LEASING Machine. 983,995. Gustav Hiller, Zittau, Germany.

WARPERS and Slashers. Comb for. 984,107. Alonzo E. Rhoades, Hopedale, Mass.

YARN CLEANER. 983,040. John P. Garey and Jefferson S. Lowman, Elmira Heights, N. Y.

## Recent Textile Trademarks Registered.

"Reunion." Work shirts. Wise Bros., New York.

"Berkeley Company." Cotton piece goods. Berkeley Co., Providence, R. I.

"Premium." Sheeting, sheets, bolster and pillow cases. Rice-Stix Dry Goods Co., St. Louis, Mo.

"B." Rugs and carpets. Plymouth Mills, Lawrence, Mass.

"Manuella Mills." Knitted and textile shirts, drawers, etc. Gurnsey B. Williams Co., Syracuse, N. Y.

"Ella Marie." Aprons, dresses, etc. Schott Home Made Garment Co., Oakland, Cal.

"Aero Brand." Textile collars. Max Orloff, Brooklyn, N. Y.

"Sunnyside." White and colored shirtings. Thomas A. Harris, Ridgewood, N. J.

"Banner." Automatic stocking knitting machine. The Hemphill Mfg. Co., Central Falls, R. I.

"Premier." Spool cotton. Blodgett & Orswell Co., Pawtucket, R. I.

"Naumkeag." Cotton sheetings. Naumkeag Steam Cotton Co., Salem, Mass.

"Pilgrim." Cotton piece goods. American Printing Co., Fall River, Mass.

"Little Bo-Peep." Hosiery. C. H. Yates & Co., Utica, N. Y.

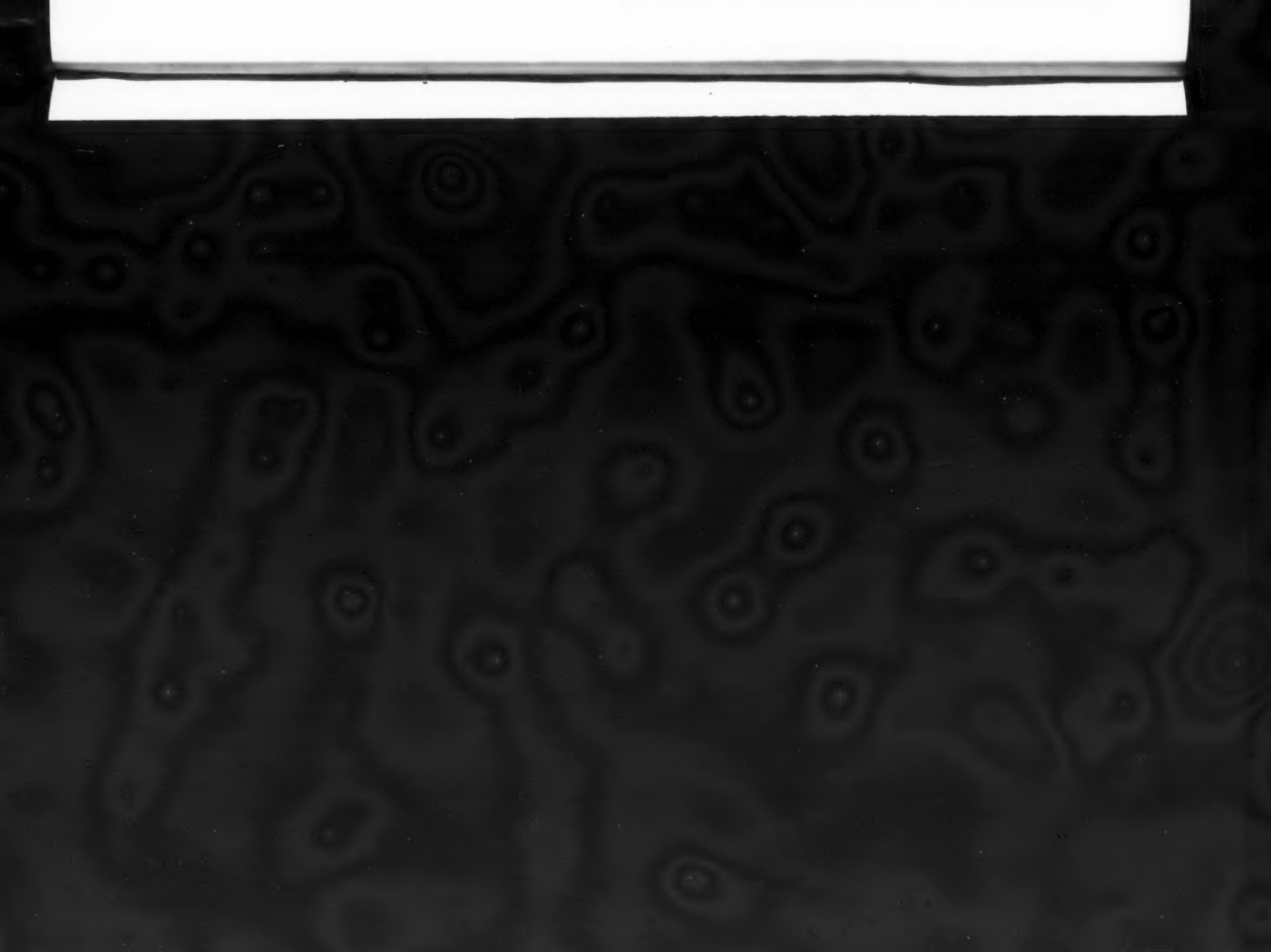
"Uncle Sam." Negligee shirts and work shirts. Salant & Salant, New York.

## Congress of Technology.

What promises to be a very remarkable and striking record of the place of science in modern industry will be presented in the series of papers which will constitute one of the main features of the Congress of Technology to be held in Boston on April 10th-11th, of this year. The first of these dates is the fiftieth anniversary of the chartering of the Massachusetts Institute of Technology, and the primary purpose of the Congress is fittingly to mark that anniversary.

But the interest of the celebration goes far beyond any personal associations with the Institute of Technology. While "Tech," as its friends know it, has been a leader in the application of science in the industries, the progress of that institution and of its graduates marks the enormous development that has taken place in all industries the world over. A large number of Technology graduates who have been conspicuously successful in varied lines of engineering will present papers at the Congress, dealing with various aspects of the country's manifold industrial problems and treating of those problems not only as they exist now but as they promise to take different shape in the future. The whole body of papers will therefore constitute a survey of engineering and industrial science as a whole, from a body of men who speak from first-hand experience with industrial problems all over the country.

The papers, separately, will discuss the conditions and prospects in specific industries and will therefore be of exceptional interest to the great number of men practically engaged in them. No similar discussion of the industries has been attempted on such a scale, and the record promises to be of unique suggestive value to the manufacturers of the country. The meetings will be open to the public.



# C. E. RILEY COMPANY

65 Franklin Street, .. BOSTON, MASS.

COTTON AND COTTON GOODS YARNS

DIRECT IMPORTERS OF EGYPTIAN COTTON

COTTON WOOLEN WORSTED MACHINERY

# Thomas Broadbent & Sons,

Huddersfield, Eng.

PATENT DIRECT STEAM DRIVEN

## HYDRO-EXTRACTORS

OVER 3500 IN USE. ALSO ELECTRICALLY DRIVEN

SUSPENDED ON LINKS. REQUIRING NO EXPENSIVE FOUNDATIONS

C. E. RILEY COMPANY, Sole Agents 65 Franklin St., Boston, Mass.

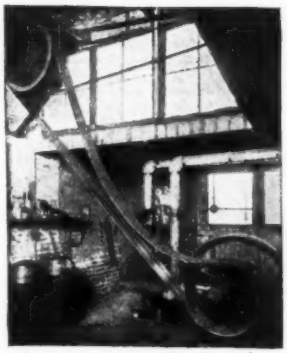
Machines Kept in Stock in Boston

# Run Your Belts Easy or Slack
## Why Not? Why Are They Run Tight?

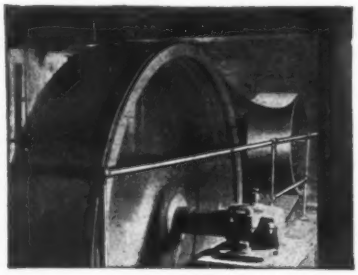
Tightening belts to prevent slip drags the pulleys together and produces excessive friction in the bearings.

Invariably this means more power used in overcoming this friction, and less available at machines, more lubrication and more attention. Or it means more hot boxes, shut-downs and repairs, while in either case the belt being loaded with needless stress, stretches and wears itself out too rapidly.

The more logical method of stopping belt slip is to fill the belt with Cling-Surface so you can ease the tension and increase the pulley contacts by letting the belt sag.



Cling-Surface makes and keeps belts pliable, healthy, vigorous, clean, waterproof, and able to work uniformly every day in the year. And as Cling-Surface filters through the outside fibres of a belt, it leaves the belt face soft and velvety, like a damp hand as compared to a dry one—not sticky but clean.

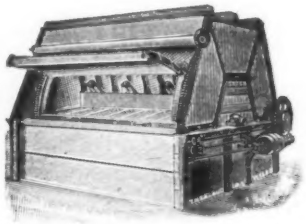


Try Cling-Surface on one belt. Our literature and advice is yours for the asking.

**Cling-Surface Co**

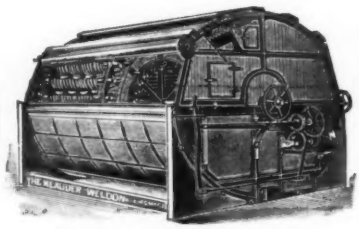
**1051 Niagara Street Buffalo N Y**

New York Boston Chicago Denver Atlanta Memphis Etc



RAW WOOL AND COTTON MACHINE.

MACHINES
sold on
2 MONTHS' TRIAL
YOU
TAKE
NO
RISK

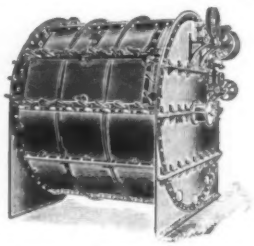


SKEIN AND SLUBBING MACHINE.

# KLAUDER-WELDON DYEING MACHINE COMPANY

HUDDERSFIELD, ENGLAND. *AMSTERDAM, N. Y.*

**Machines for Dyeing, Bleaching and Scouring** Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.

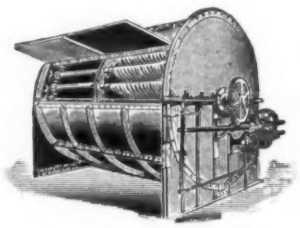


SULPHUR HOSIERY MACHINE.

**Special Machines for Sulphur Colors**

WILL EARN THEIR COST IN
LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY

Southern Agent,
H. G. MAYER, Charlotte, N. C.



SULPHUR SKEIN MACHINE.

# Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classfication here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

**Accountants.**
American Cost Accountant Co.

**Air Moistening System.**
—See Humidifying Apparatus.

**Architects and Mill Engineers**
Cramer, Stuart W.
Dean, F. W.
Ferguson, John W.
Main, Chas. T.
Weston, Robert Spurr.

**Asbestos Products.**
Johns-Manville Co., H. W.

**Asphalt Tanks.**
Scaife, W. B., & Sons.

**Automatic Feeds for Cotton and Wool.**
Harwood, Geo. S., & Son.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Scofield, Wm., Co.
Woonsocket Machine & Press Co.

**Bale Ties.**
Acme Steel Goods Co.

**Baling Presses.**
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.

**Bandings.**
—See under Yarns.

**Baskets.**
Lane, W. T., & Bro.

**Beams (Steel).**
Mossberg, Frank, Co.

**Beamers.**
Knapp, C. H.

**Belting.**
Boston Belting Co.
Chicago Belting Co.
Gandy Belting Co.
N. Y. Leather Belting Co.
Rhoades, J, E., & Sons.
—See also Mill Supplies.

**Belt Dressing.**
Cling Surface Mfg. Co.
Dixon, Jos., Crucible Co.

**Belt Lacing Machines.**
Birdsboro Steel Fdry. & Machine Co.

**Belt Shifters.**
Mossberg Wrench Co.

**Bindings.**
—See Tapes and Braids.

**Bleaching Kiers.**
Arlington Mch. Wks.
Birch Bros. (Albert Birch, prop.)
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

**Bleaching Materials.**
Bosson & Lane.
Danker & Marston.
Niagara Alkali Co.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.

**Blowers and Blower Systems.**
Dean Bros. Steam Pump Works.
Philadelphia Drying Machinery Co
Sturtevant, B. F., Co.

**Bobbins and Spool Machinery.**
Defiance Machine Works.

**Bobbins, Spools, Shuttles, Etc.**
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Mossberg, Frank, Co.
Pratt, Robert G.
Speed & Stephenson.
Tebbets, E. L., & Co.
Wilson & Co.

**Bobbin Winders.**
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

**Boilers.**
—See Steam Boilers.

**Boxes, Box Shooks, Etc.**
Pearson, J. T.
Peart, Nields & McCormick Company.

**Box Strapping.**
Acme Steel Goods Co.

**Braiding Machinery.**
New England Butt Co.
Textile Machine Works.

**Braids.**
—See Tapes, Braids and Edgings.

**Brass Hinges.**
Root, C. J., Co.

**Brasses and Bronzes.**
Cramp, Wm., & Sons, Ship and Engine Building Co.

**Bridges.**
Scaife, W. B., & Sons.

**Brushers.**
—See Napping Machines.

**Brushes.**
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

**Brushing Machines.**
Buhlmann, A. W.

**Burr Pickers.**
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

**Calico Printers' Machinery and Supplies.**
Arlington Mch. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
—See also Dyeing, Bleaching, Machinery, etc.

**Canvas Baskets.**
Lane, W. T., & Bro.

**Cap Spindles.**
American Textile Specialty Mchy. Co.
Hall, F. A. & P.
Speed & Stephenson.

**Caps.**
Calder Machine Works.

**Carbonizing Machinery.**
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Tolhurst Machine Works.

**Card Clothing.**
Ashworth Bros.
Buhlmann, A. W.
Howard Bros. Mfg. Co.
Howard & Bullough American Mach. Co.
Leigh, Evan A.
Richards, Atkinson & Haserick
Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Speed & Stephenson.

**Carded Cotton.**
Blaisdell, S., Jr., Company.
Wonalancet Co.

**Card Feeds.**
—See Automatic Feeds.

**Card Grinding Machinery.**
Buhlmann, A. W.
Dronsfield Bros.
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Richards, Atkinson & Haserick.

**Carpet Machinery.**
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

**Castings.**
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

**Caustic Potash.**
Niagara Alkali Co.

**Cell Driers.**
Cell Drier Machine Co.

**Cement Pans.**
Scaife, W. B., & Sons.

**Chain Belts.**
Link-Belt Co.
Morse Chain Co.

**Chemicals.**
Harding & Fancourt, Inc.
Roessler & Hasslacher Chemical Co.

**Chemists.**
Little, Arthur D., Inc.

**Cling Surface.**
Cling Surface Mfg. Co.

**Clocks.**
Pettes & Randall Co.

**Cloth Boards.**
Chaffee Bros.
Pearson, J. T.
Peart, Nields & McCormick Company.
Richardson Brothers.

**Cloth Expanders.**
American Finishing Machinery Co.
Arlington Mch. Wks.
Birch Bros. Somerville Mach. Wks. (Albert Birch, prop.)
Leyland, Thomas, & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Textile Finishing Machinery Co

**Cloth Testers.**
Scott, Henry L., & Co.
Suter, A.

**Cloth Winders.**
American Finishing Machinery Co

**Clutches.**
American Tool & Machine Co.
Hunter, James, Machine Co.
Mossberg Wrench Co.

**Coal.**
Darrow-Mann Co.

**Coal Analysis.**
Little, A. D., Inc.

**Combs (Wool and Cotton).**
Hood, R. H., Company.
Leigh, Evan A.
Philadelphia Textile Machinery Co
Richards, Atkinson & Haserick
Riley, C. E., Company.
Speed & Stephenson.

**Alphabetical Index to Advertisers, with page numbers, follows this list.**

**Condensers.**
Dean Bros. Steam Pump Works.

**Conveying Systems.**
Sturtevant, B. F., Co.

**Cop Machinery.**
Epplers, John, Mach. Works.

**Cop Tubes.**
American Textile Specialty Mchy. Co.
Hall, F. A. & P.
Fairpoint Corporation.
——See Paper Tubes.

**Copper Print Rollers.**
Taunton-New Bedford Copper Co.

**Coppersmiths.**
Badger, E. B., & Sons Co.

**Copper Work for Dyers.**
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile Finishing Machinery Co.

**Corrugated Iron and Steel.**
Scaife, W. B., & Sons.

**Cotton.**
Blaisdell, S., Jr., Co.
Charles, W. B.
Riley, C. E., Company.
Schwartz, L. H. A., & Co.
Wonalancet Co.

**Cotton Machinery.**
Altemus, Jacob K.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Houghton, L. T.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kitson Machine Co.
Klauder-Weldon Dyeing Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Metallic Drawing Roll Co., The.
Mossberg Wrench Co.
Palmer, I. E., Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Potter & Johnston Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
Textile Finishing Machinery Co.
Textile Machinery Co.
Whitin Machine Works.
Wildman Mfg. Co.
Woonsocket Machine & Press Co.

**Cotton Openers and Lappers.**
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Potter & Johnson Mch. Co.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

**Cotton Softeners.**
Bosson & Lane.
Burckhardt & Co.
Danker & Marston.
Harding & Fancourt, Inc.
Seydel Mfg. Co., The.
Zurn, O. F., Co.

**Cotton Waste.**
Blaisdell, S., Jr., Co.
Charles, W. L.

**Counter Shafts.**
Mossberg Wrench Co.

**Counting Machines.**
Beck, Chas., Co.
Root, C. J., & Co.

**Crayons.**
Dixon, Jos., Crucible Co.
Lowell Crayon Co.

**Creosote.**
Carbolineum Wood Preserving Co.

**Cutting Machines.**
Beck, Chas., Co.
Maimin, H.

**Cylinder Oil (Superheated Steam).**
Power Specialty Co.

**Disinfectants.**
Seydel Mfg. Co., The.

**Dobbies.**
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

**Drawing Rolls.**
Hood, R. H., Company.
Howard & Bullough American Mach. Co.
Metallic Drawing Roll Co., The.
Speed & Stephenson.

**Drying Machinery.**
Arlington Mch. Wks.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Drying Boards.**
Bull, William C.
Pearson, J. T.
Philadelphia Drying Mchy. Co.

**Dusters.**
——See Wool and Waste Dusters.

**Dust Collectors.**
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

**Dyers, Bleachers and Finishers.**
Brophy's, T., Sons.
Davidson, J. F.
Firth & Foster Co.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
Mansfield Bleachery.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
San-knit-ary Bleachery.
Solway Dyeing & Textile Co.
Standard Bleachery Co.
Utica Willowvale Bleaching Co.
Western Thread & Dye Works.

**Dyeing, Drying, Bleaching and Finishing Machinery.**
American Finishing Machinery Co.
Arlington Mch. Wks.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Consolidated H. S. & L. M. Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Franklin Process Co.
Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
Leigh, Evan A.
Leyland, Thos., & Co.
National Laundry Machinery Co.
Parks & Woolson Machine Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Psarski Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Sturtevant, B. F., Co. (Drying).
Suter, A.
Textile Finishing Machinery Co.
Tolhurst Machine Works.
United States Hoffman Company.

**Dye House Cans.**
Hill, James, Mfg. Co.

**Dye House Trucks.**
Bailey, Frank.

**Dye Sticks.**
Bailey, Frank.
Klauder-Weldon Dyeing Machine Co.

**Dye Tubs.**
——See Tanks, Tubs and Vats.

**Dyestuffs and Chemicals.**
American Dyewood Co.
Arabol Manufacturing Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Danker & Marston.
Farbenfabriken of Elberfeld Co.
Innes Speiden & Co.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Holliday Read & Sons, Ltd.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Niagara Alkali Co.
Roessler & Hasslacher Chemical Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.
Wing & Evans, Inc.

**Dynamos.**
——See Electric Lighting.

**Edgings.**
——See Tapes, Braids and Edgings.

**Electrical Construction.**
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

**Electrical Heating Devices.**
Crocker-Wheeler Co.
General Electric Co.

**Electrical Supplies.**
Johns-Manville Co., H. W.

**Electric Bells.**
Holtzer-Cabot Electric Co.

**Electric Driven Pumps.**
Dean Bros. Steam Pump Works.
General Electric Co.

**Electric Fans.**
Crocker-Wheeler Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

**Electric Hoists.**
Crocker-Wheeler Co.
General Electric Co.

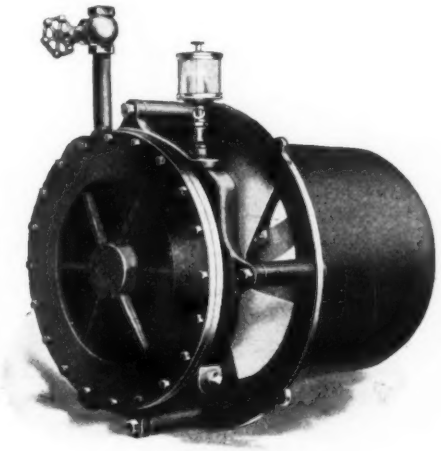
**Alphabetical Index to Advertisers, with page numbers, follows this list.**

The New

# Sturtevant

## Turbo-Undergrate Blower

*A Complete Forced Draft Unit*



Easily and cheaply installed in old or new plants. It will increase boiler capacity, allow the use of cheaper fuel, and tend to prevent clinkering.

The simple construction of a special propeller type fan direct driven by a turbine gives efficiency, durability and small steam consumption and tends to quiet operation.

Built and guaranteed by the oldest and largest builders of Mechanical Draft Apparatus in the world.

Write for Bulletin 186T. It gives illustrations, description, and prices.

## B. F. Sturtevant Co.

**Hyde Park, Mass.** S19

Designers and Builders of Heating, Ventilating, Drying and Mechanical Draft Apparatus; Fans, Blowers and Exhausters, Steam Engines, Electric Motors and Generating Sets; Fuel Economizers; Forges, Exhaust Heads, Steam Traps, etc.

**Electric Lighting.**
Crocker-Wheeler Co.
General Electric Co.
Holophane Company.
Johns-Manville Co., H. W.
Radio Reflector Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

**Electric Motors.**
Crocker-Wheeler Co.
Diehl Manufacturing Co.
General Electric Co.
Holtzer-Cabot Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

**Electrolyzer.**
National Laundry Machinery Co.

**Elevators.**
Economy Engineering Co.
New York Revolving Portable Elevator Co.
Otis Elevator Co.
Reno Inclined Elevator Co.
Ridgway, Craig & Son Co.
Salem Elevator Works.

**Employees' Time Recorders.**
Pettes & Randall Co.

**Engines.**
—See Steam and Oil Engines.

**Engine Repairs.**
Fishkill Landing Machine Co.

**Engineers (Textile).**
Buhlmann, A. W.

**Exhaust Heads.**
Burt Mfg. Co.
Sturtevant, B. F., Co.
Power Specialty Co.

**Fans—Exhaust and Ventilating.**
—See Ventilating Apparatus.

**Feed Water Heaters.**
Scaife, W. B., & Sons.

**Feed Water Pumps.**
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

**Feed Water Purifiers.**
American Water Softener Co.
Keystone Chemical Mfg. Co.
Scaife, W. B., & Sons.

**Feeds.**
—See Automatic Feeds.

**Felt Hardeners.**
Farrel Foundry and Machine Co.

**Felting Machinery.**
Farrel Foundry and Machine Co.

**Fender Boards.**
Case Bros.

**Filters.**
American Water Softener Co.
Burt Mfg. Co.
Hungerford & Terry.
Keystone Chemical Mfg. Co.
Norwood Engineering Co.
Scaife, W. B., & Sons.

**Finishing Compounds.**
—See Sizings.

**Finishing Machinery.**
—See Dyeing, Drying, Bleaching and Finishing.

**Fire Brick.**
Borgner, Cyrus, Co.
Johns-Manville Co., H. W.

**Fire Extinguishers.**
Badger, E. B., & Sons Co.

**Fire Hose.**
Eureka Fire Hose Co.

**Fire Hydrants.**
Norwood Engineering Co.

**Fire Insurance.**
Home Insurance Co.

**Fire Proof Doors and Windows.**
Badger, E. B., & Sons Co.

**Flax, Tow, Hemp and Jute Machinery.**
Fairbairn-Lawson-Combes-Barbour, Ltd.

**Fluted Rolls.**
Hood, R. H., Company.
Howard & Bullough American Mach. Co.
Leigh, Evan A.
Riley, C. E., Company.
Thurston, A. G., & Son.

**Flyers.**
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hall, F. A. & P.
Hopkins Machine Works.
Howard & Bullough American Mach. Co.
Leigh, Evan A.
Speed & Stephenson.
Textile Machinery Co.

**Forges.**
Sturtevant, B. F., Co.

**Friction Clutches.**
—See Clutches.

**Friction Cones.**
Evans Friction Cone Co.

**Fuel.**
Darrow-Mann Co.

**Fuel Economizers.**
Green Fuel Economizer Company.
Sturtevant, B. F., Co.

**Fulling Mills for Woolen Goods**
Hopkins Machine Works.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Kenyon, D. R., & Son.

**Furnaces (Automatic Smokeless).**
Murphy Iron Works.

**Garnetts.**
Hunter, James, Machine Co.
Leigh, Evan A.
Smith & Furbush Machine Co.

**Gas Blowers and Exhausters.**
Sturtevant, B. F., Co.

**Gaskets (Superheated Steam).**
Johns-Manville Co., H. W.
Power Specialty Co.

**Gauges.**
Walworth Manufacturing Co.

**Gears.**
Farrel Foundry and Machine Co.
New Process Raw Hide Co.

**Gear Cutting.**
Farrel Foundry and Machine Co.

**Gear Cutting Machine.**
Whiton, The D. E., Co.

**Generating Sets.**
General Electric Co.
Holtzer-Cabot Electric Co.
Sturtevant, B. F., Co.

**Geyser Water Heater.**
Sargent's Sons, C. G., Corp.

**Greases.**
N. Y. & N. J. Lubricant Co.

**Harness Twine.**
Moore, C., & Co.

**Harness and Frames.**
Garland Mfg. Co.
Gowdey, J. A., Reed and Harness Mfg. Co.
Steel Heddle Mfg. Co.

**Heating.**
—See Ventilating Apparatus.

**Heddles.**
American Supply Co.
Howard Bros. Mfg. Co.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

**Hoisting Apparatus.**
Economy Engineering Co.
Yale & Towne Mfg. Co.

**Hosiery Boards.**
Pearson, J. T.
Philadelphia Drying Machinery Co.

**Hosiery Board Clamps.**
Beck, Albert C.

**Hosiery Labels.**
Kaumagraph Company.

**Humidifying Apparatus.**
American Moistening Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Fries, John W.
Johns-Manville Co., H. W.
Parks, G. M., Co.

**Humidity Gauge.**
Johns-Manville Co., H. W.

**Hydraulic Rams.**
Power Specialty Co.
Walworth Mfg. Co.

**Hydraulic Testing Machines.**
Knapp, C. H.

**Hydro Extractors.**
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dienelt & Eisenhardt, Inc.
Riley, C. E., Co.
Richards, Atkinson & Haserick.
Schaum & Uhlinger.
Schwartz, L. H. A., & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Hygrodeik.**
Johns-Manville Co., H. W.

**Insulating and Braiding Silks.**
Sauquoit Silk Mfg. Co.

**Insurance (Casualty, Fire and for Loss of Profits).**
Home Insurance Co.

**Ironing Machines for Knit Goods.**
Consolidated H. S. & L. M. Co.

**Jacquards.**
Halton's, Thomas, Sons.

**Jacquard Cards.**
Case Bros., Inc.

**Knit Goods, Edgings, Trimmings, Etc.**
Chapin, George W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

**Knit Goods, Finishing Machines, Crochet, Etc.**
American Laundry Machinery Mfg Co.
Consolidated H. S. & L. M. Co.
Craw, J. W., Machinery Company.
Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Union Special Machine Co.
United States Hoffman Co.

**Knitting Machine Cylinders.**
Paxton & O'Neill.
Stafford & Holt.

**Knitting Machinery.**
Acme Knitting Machine & Needle Co.
Ainsley Knitting Machine Co.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Cooper, Chas.
Crane Mfg. Co.
Epplers, John, Mach. Works.
Excelsior Knitting Machine Mfg. Co.
General Machine Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Hirsch, Louis.
Jenckes Knitting Mach. Co.
Lamb Knitting Mach. Mfg. Co.
Leighton Machine Co.
Lindley, Geo. W.
Mayo, Geo. D., Knitting Machine Co.
National Automatic Knitter Co.
Nye & Tredick Co.
Paxton & O'Neill.
Richter, Wolfgang.
Rieffel, August.
Scott & Williams.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Taylor, James.
Tompkins Bros. Co.
Walther, Otto.
Wilcomb Machine Co.
Wildman Mfg. Co.

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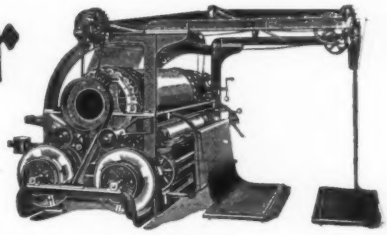
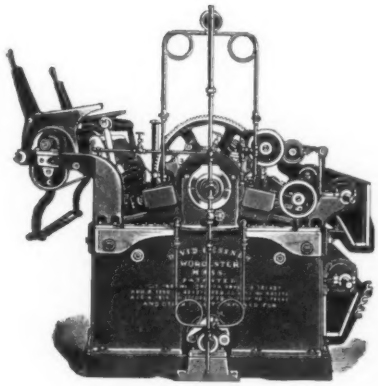
# David Gessner

## Worcester, Mass.

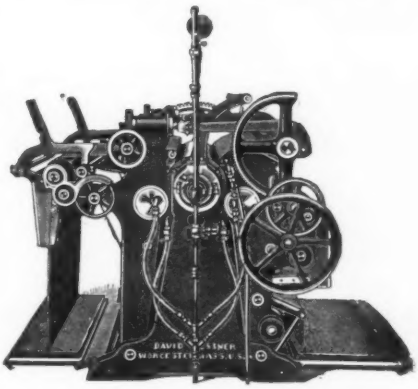




**Latest Improved Cloth Finishing Machinery**

—

**Napping Machines and Presses a Specialty**



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# "AMERICAN"

## A VALUABLE TEXT BOOK ON ROPE DRIVING FREE

Chapters on the advantages of Manila Rope for the transmission of power, on systems of arranging drives, data on sheaves, directions for splicing, formula and data for calculating drives, practical notes on the care of ropes, and a detailed description of the many superior qualities of

**"AMERICAN" TRANSMISSION ROPE**

Manufactured by the

**American Manufacturing Co.**

65 Wall St., New York City

We make a specialty of Manila, Sisal and Jute Bale Rope.

*Write for Samples*

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Cooper, Chas.
Corey, Wm., Co.
Crane Mfg. Co.
Currier Needle Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Keystone Latch Needle Co.
Lamb Knitting Machine Mfg. Co.
M. O. S. Mfg. Company.
Rieffel, August.
Spindler, E. O.
Wardwell Needle Co.

**Label Wire Stitchers.**
Beck, Chas., Co.
Shoemaker, J. L., & Co.

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Buckeye Electric Co.
Cooper Hewitt Electric Co.
General Electric Co.
Johns-Manville Co., H. W.
Westinghouse Electric & Mfg. Co.

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Selas Company.

**Lap Boards.**
Peart, Nields & McCormick Company.

**Light Reflectors.**
Holophane Company.
Wheeler Reflector Co.

**Liquid Chlorine.**
Niagara Alkali Co.

**Locks.**
Yale & Towne Mfg. Co.

**Loom Pickers.**
Garland Mfg. Co.

**Loom Reeds.**
Gowdey, Reed & Harness Mfg. Co.
Knowles, Wm. H., & Co.

**Looms.**
Buhlmann, A. W.
Crompton & Knowles Loom Works.
Draper Company.
Kilburn, Lincoln & Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
Richards, Atkinson & Haserick.
Stafford Co., The.
Whitin Machine Works.

**Loopers.**
Beattie Manufacturing Co.
Hepworth, John, W., & Co.
Leighton Machine Co.

**Lubricants.**
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.

**Lubricators.**
Walworth Mfg. Co.

**Lumber.**
Peart, Nields & McCormick Company.

**Lumpers.**
Gerry, George, & Son.
Schofield, William, Co.

**Machinery Dealers.**
Schofield, Geo. L.
Speed & Stephenson.
Taylor, James.

**Machinists.**
Calder Machine Works.

**Machinists' Tools.**
Whiton, The D. E., Co.

**Magnesia Products.**
Johns-Manville Co., H. W.

**Mails.**
Walder, J.

**Marking Pots.**
Bradley, A. J.

**Measuring and Folding Machines.**
Curtis & Marble Machine Co.
Elliot & Hall.

**Mechanical Draft.**
Sturtevant, B. F., Co.

**Mechanical Draughtsmen.**
Sturtevant, B. F., Co.

**Mechanical Engineers.**
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

**Mechanical Stokers.**
American Ship Windlass Co.
Murphy Iron Works.

**Mercerizers.**
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.
Standard Bleachery Co.

**Mercerizing Machinery.**
Buhlmann, A. W.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Machine Co.
Schwartz, L. H. A. & Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

**Metallic Fire-Proof Window Frames and Sashes.**
Badger, E. B., & Sons Co.

**Metallic Packing.**
Power Specialty Co.

**Mill Architects.**
——See Architects and Mill Engineers.

**Mill Builders and Engineers.**
Ferguson, John W.
Main, Chas. T.

**Mill Supplies.**
American Supply Co.
Bamford & Smith.
Buckley's Benjamin, Sons.
Cramp, Wm., & Sons, Ship & Engine Bldg. Co.
Easton-Burnham Co.
Eureka Fire Hose Co.
Garland Mfg. Co.
Knowles, Wm. H., & Co.
Lane, W. T., & Bro.
Leigh, Evan A.
N. Y. & N. J. Lubricant Co.
Pairpoint Corporation.
Philadelphia Drying Machinery Co.
Pratt, R. C.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Richardson Bros.
Shaw, Victor, Ring Traveler Co.
Speed & Stephenson.
Sweet & Doyle.
Thurston, A. G., & Son.
Vandegrift, Elias T.
Walworth Manufacturing Co.

**Motors.**
——See Electric Motors.

**Moving Stairways.**
Reno Inclined Elevator Co.

**Muriatic Acid.**
Niagara Alkali Co.

**Napping Machinery.**
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Curtis & Marble Machine Co.
Gessner, David.
Leigh, Evan A.
Parks & Woolson Machine Co.
Schwartz, L. H. A., & Co.

**Noils (Silk).**
Ryle, Wm., & Co.

**Non-fluid Oils.**
N. Y. & N. J. Lubricant Co.

**Numbering Machines.**
Beck, Chas., Co.

**Oilless Bearings.**
Arguto Oilless Bearing Co.

**Oil Cups.**
Walworth Manufacturing Co.

**Oil Engines.**
De la Vergne Machine Co.

**Oils.**
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Burckhardt Company.
Harding, Fancourt, Inc.
N. Y. & N. J. Lubricant Co.
Zurn, O. F., Co.

**Oil Stencil and Press Board Paper.**
Scholler Bros.
Bradley, A. J.

**Overseaming Machines.**
Merrow Machine Co.
Singer Sewing Machine Co.

**Packing Cases.**
Peart, Nields & McCormick Company.

**Packings (Metallic).**
Power Specialty Co.

**Paints.**
Briggs, John, & Company.
Brown, Chas. H., Paint Co.
U. S. Gutta Percha Paint Co.
Wadsworth, Howland & Co.

**Paints (Wood Preserving).**
Carbolineum Wood Preserving Co.

**Pantagraphs for Mill Engraving.**
Johnson, C. A., & Co.

**Paper.**
American Writing Paper Co.
Beck, Chas., Co.
Lane, Albert A.
Merwin Paper Co.
Richardson Bros.

**Paper Boards.**
Merwin Paper Co.

**Paper Cones.**
Pairpoint Corporation.

**Paper Tubes.**
Pairpoint Corporation.

**Patent Solicitors.**
Crosby & Gregory.
Howson & Howson.

**Perforated Metals.**
Hopkins Machine Works.

**Peroxide of Sodium.**
Roessler & Hasslacher Chemical Co.

**Pipes and Fittings.**
Scaife, W. B., & Sons.
Walworth Manufacturing Co.

**Plush Machinery.**
Buhlmann, A. W.

**Pneumatic Conveying.**
——See Ventilating.

**Portable Elevators.**
Economy Engineering Co.
New York Revolving Portable Elevator Co.

**Power Transmission Machinery.**
Almond, T. W., Mfg. Co.
American Pulley Co.
Cell Drier Machine Co.
Cresson, Geo. V., Co.
Evans, G. Frank.
Farrel Foundry and Machine Co.
Hunter, James, Machine Co.
Jones & Laughlin Steel Co.
Kilburn, Lincoln & Co.
Link-Belt Co.
Morse Chain Co.
Philadelphia Drying Machinery Co.
Phillips Pressed Steel Pulley Works.
Reeves Pulley Co.
Reger Pulley Works.
Royersford Foundry & Machine Co.
Saginaw Manufacturing Co.
Schofield, William & Co.
Sellers, William, & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

**Preparatory Machinery (Cotton).**
Howard & Bullough Am. Machine Co.
Kitson Machine Co.
Leigh, Evan A.
Potter & Johnston Mch. Co.
Riley, C. E., Company.
Saco-Pettee Company.

**Preservatives.**
Carbolineum Wood Preserving Co.

**Presses.**
Boomer & Boschert Press Co.
Buttterworth, H. W., & Sons Co.
Consolidated H. S. & L. M. Co.
Craw, J. W., Machinery Company.
Curtis & Marble Machine Co.
Gessner, David.
Hart, Charles.
Minnich Machine Works.
Phila. Drying Machinery Co.
Spence & Rideout.
Textile Finishing Machinery Co.
United States Hoffman Company.
Woonsocket Machine & Press Co.

**Press Boards.**
Beck, Chas., Co.
Case Bros., Inc.

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**Press Papers.**
Beck, Chas., Co.
Merwin Paper Co.
Philadelphia Drying Mchy. Co.
Richardson Brothers (Importers and Dealers).

**Pressure Regulators.**
Walworth Mfg. Co.

**Pulleys.**
——See Power Transmission Machinery.

**Pumps.**
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.
Lawrence Pump & Engine Co.
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

**Pump Governors.**
Dean Bros. Steam Pump Works.
Walworth Mfg. Co.

**Purifying & Filtration Plants.**
American Water Softener Co.
Hungerford & Terry.
Keystone Chemical Mfg. Co.
Norwood Engineering Co.
Scaife, W. B., & Sons.

**Quillers.**
Foster Machine Co.
Payne, G. W., & Co.
Universal Winding Co.

**Rag Pickers.**
Schofield, Wm., Co.
Smith & Furbush Machine Co.

**Rainproofers.**
Miller & Harrison.

**Raveling Machines.**
American Raveler Co.
Arguto Oilless Bearing Co.

**Raw Hide Gears.**
New Process Raw Hide Co.

**Reed and Harness Manufacturers.**
American Supply Co.
Gowdey, J. A., Reed and Harness Mfg. Co.
Knowles, Wm. H., & Co.
Nuttall, George.
Walder, J.

**Reducing Valves.**
Walworth Mfg. Co.

**Regulators (Pressure).**
Walworth Mfg. Co.

**Ribbons.**
Cheney Bros.

**Ring Travelers.**
Shaw, Victor, Ring Traveler Co.
U. S. Ring Traveler Co.

**Roofing.**
Barrett Mfg. Co.
Johns-Manville Co., H. W.

**Roller Bearings.**
Royersford Foundry & Machine Co.

**Rollers (Rubber Covered).**
Boston Belting Co.

**Roller Logs.**
Hartwell, G. E.

**Rope Dressing and Preservative.**
Cling-Surface Co.

**Rope Transmission.**
American Mfg. Co.
Cresson, Geo. V., Company.
Jones & Laughlin Steel Co.

**Roving Cans.**
Hill, James, Mfg. Co.
Standard Fibre Co.

**Roving Reels.**
Scott, Henry L., & Co.

**Scallop Machines.**
Merrow Machine Co.

**Schools.**
International Correspondence Schools.
Lowell Textile School.
New Bedford Textile School.
Philadelphia Textile School.

**Secondhand Machinery.**
——See Mchy. Dealers, also Classified Ads.

**Separators (Yarn).**
Draper Co., The.
Howard & Bullough American Mach. Co.

**Sewing Machines and Supplies.**
American Raveler Co.
Arlington Mch. Wks.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Bridoux, Chas. H., & Co.
Curtis & Marble Machine Co.
Dinsmore Mfg. Co.
Fales, L. F.
Singer Sewing Machine Co.
Somerville Mach. Wks. (Albert Birch, prop.)
Textile Finishing Machinery Co.
Union Special Machine Co.
Willcox & Gibbs.

**Shafting, Hangers, Etc.**
——See Power Transmission Machinery.

**Shearing Machinery.**
——See Dyeing, Drying, Bleaching and Finishing.

**Sheet Metal Pressings.**
M. O. S. Mfg. Company.

**Sheet Metal Work.**
Scaife, W. B., & Sons.

**Shell Rolls.**
Thurston, A. G., & Son.

**Shuttles.**
——See Bobbins, Spools, Shuttles, Etc.

**Silk Machinery.**
Arlington Mch. Wks.
Buhlmann, A. W.
Butterworth, H. W., Sons Co.
Leigh, Evan A.
Mason Machine Works.
Richards, Atkinson & Haserick.
Schwartz, L. H. A., & Co.
Suter, A.
Textile Finishing Machinery Co.

**Silk Mill Supplies.**
Hall, I. A., & Co.

**Silk Noils.**
Fawcett, Hughes.

**Singe Plates.**
Butterworth, H. W., Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Machinery Co.

**Singeing Machines.**
Birch Bros., Somerville Mach. Wks.
Butterworth, H. W., Sons Co.
Curtis & Marble Machine Co.
Societe Anonyme Electro-Textile.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

**Sizing, Starch and Gums.**
American Diamalt Co.
Arabol Mfg. Co.
Corn Products Refining Co.
Danker & Marston.
Scholler Bros.
Seydel Mfg. Co., The.
Zurn, O. F., Co.

**Skein Mercerizing Machines.**
Buhlmann, A. W.

**Skylights.**
Van Noorden, E., Co.

**Slashers.**
Leigh, Evan A.
Lowell Machine Shop.
Riley, C. E., Company.

**Soaps.**
Burckhardt Co.
Dobbins Soap Mfg. Co.
Seydel Mfg. Co., The.

**Spindles.**
Bamford & Smith.
Bodden, Wm. & Son, Ltd.
Buckley's, Benjamin, Sons.
Calder Machine Works.
Draper Company.
Easton-Burnham Co.
Hall, F. A. & P.
Hopkins Machine Works.
Howard & Bullough American Mach. Co.
Leigh, Evan A.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.

**Spindle Tubes.**
Bamford & Smith.
Calder Machine Works.
Riley, C. E., Company.
Richards, Atkinson & Haserick.
Vandegrift, Elias T.

**Spinning Frame Saddles.**
Dixon Lubricating Saddle Co.

**Spinning Rings.**
Draper Company.
Hall, F. A. & P.
Howard & Bullough American Machine Co.
Whitinsville Spinning Ring Co.

**Spinning Tubes.**
Buckley's, Benjamin, Sons.
Hall, F. A. & P.

**Spools.**
——See Bobbins, Spools, Shuttles, Etc.

**Spoolers.**
Draper Company.
Easton & Burnham Machine Co.
Hall, F. A. & P.
Lindsay, Hyde & Co.
Lowell Machine Shop.
Payne, George W., & Co.

**Stacks.**
Scaife, W. B., & Sons.

**Steam Boilers.**
Scaife, W. B., & Sons.

**Steam Engines.**
Fishkill Landing Machine Co.
Griscom-Spencer Co.
Providence Engineering Works.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.

**Steam Jacket Kettles.**
Badger, E. B., & Sons Co.

**Steam Pumps.**
Dean Bros. Steam Pump Works.
Goulds Manufacturing Co., The.
Walworth Mfg. Co.

**Steam Specialties.**
Butterworth, H. W., Sons Co.
Sargent's Sons, C. G., Corp.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
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*for* Woolen Mills

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Make *it* better with **Wonalancet**
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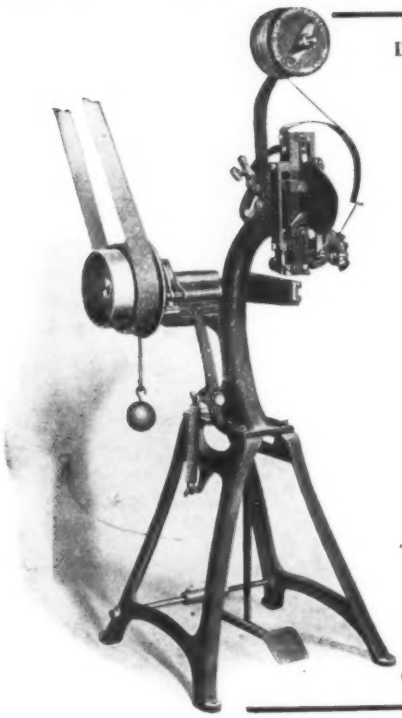

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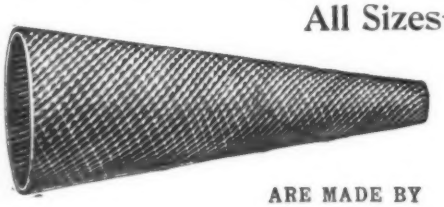

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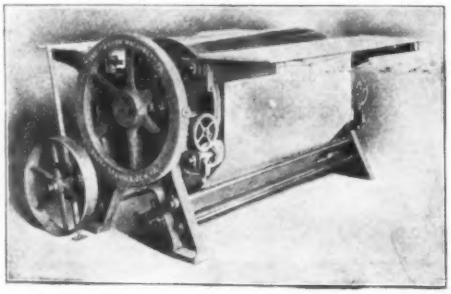

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5089, Textile World Record, Boston, Mass.

**Asst. Supt. Cotton** or worsted mill, or boss carder, spinner and twister; worked on plain and fancy cottons, single and twisted yarns, worsteds and men's and women's wear; familiar with all kinds of textile machinery; 27 years of age; good reference.
4921, Textile World Record, Boston, Mass.

**Superintendent** worsted yarn mill, Bradford system; worked on carpet stock to fine Australian and medium grade wool; familiar with any kind of machinery, Bradford system; 44 years of age, married; good reference.
4939, Textile World Record, Boston, Mass.

**Superintendent** of small cotton mill, or boss ring spinner, spooler and warper; worked on both fine and coarse numbers, Egyptian and Sea Island cotton; familiar with the Fales, Jenks, Whitin, and Lowell frames; will not go to Pa., N. J., West, South or Canada; 47 years of age, married; good reference.
4843, Textile World Record, Boston, Mass.

**Superintendent** or boss carder in cotton mill; worked on all kinds of yarns from 7s to 30s in single skeins, 2 to 4 ply on cones, tubes and beams; familiar with most all makes of American machinery; 39 years of age, married; good reference; will only go West and South.
5055, Textile World Record, Boston, Mass.

**Supt., Asst. Supt.** or boss carder in cotton mill; worked on all grades and stables of Peeler, Egyptian and Sea Island, bleached and colored cotton, single and double carded and combed, making from 20s to 120s yarn; understands the manufacture of all kinds of cotton yarn thoroughly; has had experience on all machinery but the Lowell Machine Shop; 35 years of age, married; good reference; will not go to Canada.
5023, Textile World Record, Boston, Mass.

## COTTON WEAVERS.

**Boss Weaver** or second hand in cotton mill; worked on fine dress goods, drills, sateens, woolen and cotton bed blankets, corduroys, heavy duck and plain sheeting; familiar with the Draper, Crompton & Knowles drop, box, dobby and all plain looms; 32 years of age, married; good reference; will not go West or South.
5103, Textile World Record, Boston, Mass.

**Manager of a cotton** weaving plant familiar with all classes of fancy cotton goods is open for engagement; would consider a position as overseer of weaving, bookkeeping or shipping clerk; 42 years of age, German; speaks German, French and English; good reference.
4879, Textile World Record, Boston, Mass.

**Second Hand of Weaving** or designing in cotton mill; worked on all kinds of cotton goods; familiar with all kinds of American weaving machinery; 33 years of age, married; good reference. 4327, Textile World Record, Boston, Mass.

**A Young Man** desires position in cotton weave room to become eventually an overseer; 28 years of age; has had a textile school education and is good at designing and calculating; will go anywhere for a position and can take a position immediately; German. 4164, Textile World Record, Boston, Mass.

## WOOLEN SUPERINTENDENTS.

**Supt., Mgr.,** or designer in a woolen or worsted mill; worked on fancy worsteds for men's wear; familiar with all modern makes of machinery in the various departments; 50 years of age, married; will not go West, South, Pa. or Canada; good reference.
5102, Textile World Record, Boston, Mass.

**Supt. or Boss Weaver** in woolen mill; worked on dress goods, wool and worsted cloakings, men's wear and piece dyed fancy goods, also satinets; familiar with the Crompton & Knowles looms; 46 years of age; good reference.
5107, Textile World Record, Boston, Mass.

**Supt. or Asst. Supt.** in woolen mill; worked on unions, satinets, woolens, worsteds and flannels; familiar with worsted yarn machinery; weaving, finishing, woolen carding and spinning machinery; 30 years of age, married; will not so South; good reference.
5093, Textile World Record, Boston, Mass.

**Agent,** superintendent or designer in woolen mill; worked on anything in the wool, worsted and cotton line from 16c. per yard to $4.25; familiar with almost any makes of machines; 40 years of age, married; good reference; will not go to Canada.
5094, Textile World Record, Boston, Mass.

**Agent or Superintendent** of a woolen mill; worked on all grades of woolens, worsteds, men's wear, face goods, overcoatings and cloakings; familiar with all kinds of machinery, both English and American; will not go to Pa., N. Y., N. J., West, South or Canada; 40 years of age, married.
4860, Textile World Record, Boston, Mass.

**Woolen Superintendent** or superintendent and designer; worked on men's wear and dress goods, both woolen and worsted, heavy and light weight; will not go West, or South; 47 years of age, married; good reference.
4765, Textile World Record, Boston, Mass.

## WOOLEN WEAVERS.

**Boss Weaver** in woolen mill; worked on fancy and cotton worsteds, serges and woolen suitings; familiar with Crompton & Thayer and Crompton & Knowles looms; 35 years of age, married; will not go to Pa., N. Y., N. J., West, or South; good reference.
5095, Textile World Record, Boston, Mass.

**Boss Weaver** in woolen mill; worked on ladies' dress goods, woolen and worsted men's wear, woolen and worsted overcoatings, cassimeres, beavers, kerseys, blankets, plain and fancy; familiar with Crompton & Knowles, Crompton & Thayer, and old styles of Cromptons; 30 years of age, married; will not go to Mass., R. I., Ct., Me., N. H., Vt., or Canada; good reference.
4883, Textile World Record, Boston, Mass.

**Boss Weaver** in woolen mill; worked on all kinds of woolens and worsteds; familiar with the Crompton, Knowles, Thayer, old or new woolen and worsted looms; 49 years of age, married; good reference.
4934, Textile World Record, Boston, Mass.

**Boss Weaver** in woolen mill; worked on all kinds of woolen goods, cotton worsteds, fancy worsteds, etc.; familiar with Crompton & Knowles looms; will not go South; 38 years of age, married; good reference.
4911, Textile World Record, Boston, Mass.

**Overseer of Weaving** or position as second hand in a woolen or worsted mill; plain or fancy; familiar with Knowles & Crompton looms; married man, 43 years of age, English; good references. 3647, Textile World Record, Boston, Mass.

## KNITTERS.

**Fixer, Overseer** or supt. of knitting; worked on men's, women's and children's underwear, ribbed goods, union suits and waists, in fact anything that can be made on latch needle machines; familiar with Nye & Tredick, Scott & Williams, Snyder, Fisher, Wildman, Stafford & Holt and Brinton machines; 36 years of age, married; good reference.
5099, Textile World Record, Boston, Mass.

**Supt. Yarn Mill,** boss finisher, twister or spinner in cotton mill; worked on thread yarns, hosiery yarns, lisle threads, plain and six cord harness twines from Peeler, Egyptian and Sea Island cottons; familiar with the Fales & Jenks, Howard & Bullough, Lowell Machine Shop, Dobson & Barlow machines; 42 years of age, married; good reference.
5091, Textile World Record, Boston, Mass.

**Boss Knitter** on flat and Raschel machines; worked on sweaters, sweater coats and fancy work; familiar with the Grosser jacquard, hand and power machines, also Raschel machines; will not go to Canada; 45 years of age, married; good reference.
5054, Textile World Record, Boston, Mass.

**Boss Knitter,** finisher or assistant superintendent; has worked on everything in the knit goods line; familiar with all kinds of machinery; 43 years of age, married; prefers the West or Middle West.
5042, Textile World Record, Boston, Mass.

**Manager of Knitting Mill** with capital to invest on sweaters; prefers a concern selling to the retail trade.
4967, Textile World Record, Boston, Mass.

**Overseer or Fixer** on knitting machines; worked on worsted, cotton, merino and mercerized underwear; familiar with Scott & Williams, McMichael, Wildman, Snyder, Fisher, Cooper circular spring needle and Tompkins spring needle on balbriggans; 31 years of age, married; good reference.
4763, Textile World Record, Boston, Mass.

**Hosiery Mill Superintendent** or boss dyer for large mill, running on aniline blacks and colors; worked on boys', misses' and children's, 1 and 1 and 2 and 1 ribbed hose, ladies' hose and men's half hose from 108 to 200 needle; familiar with all makes of machinery; 37 years of age, married; good reference. 4190, Textile World Record, Boston, Mass.

**Overseer of Finishing** on hosiery; worked on all kinds of seamless and fancy goods; will not go to Maine, New Hampshire, Vermont, Connecticut, South or Canada; 27 years of age; good reference.
4744, Textile World Record, Boston, Mass.

**Fixer on Seamless** hose machines; familiar with Acme and Mayo machines; 28 years of age, married; good reference.
4767, Textile World Record, Boston, Mass.

**Boss Knitter** and machinist; worked on mittens, gloves, hosiery, shawls, lace, edging and toques; familiar with the Lamb & Acme machines, Lindley lace and edging machines, German double ribbers, Nye & Tredick and Brinton ribbers; 40 years of age, married; good reference.
5008, Textile World Record, Boston, Mass.

**Overseer** of knitting; worked on all kinds of wool, worsted, cotton and linen goods, both single and double plush, gauges, from 16 to 30; familiar with Tompkins Bros., Campbell & Clute spring needle and cylinder machines; 33 years of age, married; good reference; will not go South or Canada.
4997, Textile World Record, Boston, Mass.

**Boss Knitter** on latch needle machinery; worked on ladies' and men's sweater coats in all grades, ribbed goods, wool and cotton; familiar with the Leighton, Lamb, Scott & Williams, Wildman, Nye & Tredick, Stafford & Holt, Huse, Branson, Pepper, Snyder and Fisher machines; 32 years of age, married; good reference.
4926, Textile World Record Boston, Mass.

**Supt. of Knitting Mill;** worked on shawls, scarfs, fascinators, ladies' jackets and vests; familiar with the Baschel rippers and sewing machines; 36 years of age, married; good reference.
4927, Textile World Record, Boston, Mass.

## KNITTERS.

**Boss Knitter** or fixer; worked on all kinds of latch needle work; familiar with the Scott & Williams, McMichael and Wildman machines; 37 years of age, married; good reference; will not go to Canada.
4935, Textile World Record, Boston, Mass.

**Supt. of Knitting Mill;** might consider position as overseer of finishing on flat knit underwear or hosiery; 28 years of experience in textile mills; 48 years of age married; good reference.
5034, Textile World Record, Boston, Mass.

**Boss Knitter** or fixer; has worked on hosiery; familiar with the Geo. D. Mayo, Hepworth and German loopers; 24 years of age, married; will only work in the South; good reference.
4835, Textile World Record, Boston, Mass.

**Overseer of Knitting;** worked on all classes of hosiery; familiar with all makes of machinery; 29 years of age, married; will not go to Mass., R. I., Conn., Me., N. H., Vt., N. Y., N. J., or Canada; good reference.
4837, Textile World Record, Boston, Mass.

**Overseer of Finishing** or sewing machine fixer; worked on union suits and some two piece suits; familiar with all makes of knitting and sewing machines; will not go to Canada; 24 years of age; good reference.
4818, Textile World Record, Boston, Mass.

**Superintendent,** assistant or boss knitter in underwear mill; worked on ladies', gent's and children's light and heavy weight, 24 and 36 gauge; familiar with Nye & Tredick, McMichael & Wildman, Scott & Williams, Stafford & Holt, Snyder & Fisher machines; will not go to Mass., R. I., Conn., Me., N. H., Vt., South or Canada; 27 years of age, married; good reference.
4815, Textile World Record, Boston, Mass.

**Superintendent,** sewing machine fixer or boss knitter on latch needle machines; worked on all kinds of underwear; familiar with all makes of machinery; will not go South or Canada; 32 years of age, married; good reference.
4832, Textile World Record, Boston, Mass.

## MASTER MECHANICS.

**Supervising Engineer** or master mechanic in a cotton on woolen mill; familiar with finishing, bleaching and dyeing machinery, shaftings, pipings, boilers, engines, electric motors; in fact all kinds of machinery used in a cotton or woolen dyeing, finishing or bleaching establishment; 25 years of age; good reference. 4786, Textile World Record, Boston, Mass.

**Master Mechanic** or boss machinist; familiar with all kinds of machinery; will not go to Canada; 32 years of age; good reference.
4902, Textile World Record, Boston, Mass.

**Master Mechanic;** has worked on cotton goods; familiar with all makes of machinery; 50 years of age, married; will not go to Pa., West, South or Canada; good reference.
4866, Textile World Record, Boston, Mass.

## BLEACHERS AND DYERS.

**Dyer and Bleacher** in woolen mill; worked on hosiery, botany, mohair, woolen and carpet yarns, slubbing, etc.; familiar with the Klauder-Weldon dyeing machines and the Philadelphia Dyeing & Drying Machine Company's yarn dyeing machine; 40 years of age, married; good reference.
5101, Textile World Record, Boston, Mass.

**Boss Bleacher** or assistant; worked on sateens, lawns, dotted Swiss lingeries, shirtings, drills, embroideries, etc., caustic soda, lime and ash process; familiar with all styles of machines used in bleaching, such as washers, mangles, kiers, etc.; 26 years of age, married; will not go to Me., N. H., Vt., or Canada; good reference.
4910, Textile World Record, Boston, Mass.

**Cotton Bleaching;** manager, superintendent, office manager, or New York representative; worked on cotton piece goods; familiar with bleaching and print works machinery; prefers the N. E. States; 40 years of age, married; good reference. 4789, Textile World Record, Boston, Mass.

## COTTON SPINNERS.

**Second Hand** in ring spinning department in cotton mill; familiar with the Dobson & Barlow, Brooks & Doxey, Howard & Bullough, Asa Lees, and Lard Brother's machines; 25 years of age; will not go West or Canada; good reference.
5100, Textile World Record, Boston, Mass.

**Overseer of Ring and Mule Cotton Spinning;** worked on all classes of goods; familiar with all makes of spring machinery; 40 years of age, married; good reference.
4804, Textile World Record, Boston, Mass.

## WOOLEN SPINNERS.

**Boss Spinner** in woolen mill; worked on all cotton mixed wool, cotton and all shoddies; familiar with the D. & F., J. & B. mules and jacks; 49 years of age, married; good reference; would like to go South.
5092, Textile World Record, Boston, Mass.

**Boss Spinner** in woolen mill; has worked on fine merino yarn to the coarsest horse blanket, in all wool, once or twice spun work, also satinet and unions; familiar with the J. & B., D. & F., Bancroft and M. A. Furbush machines; 48 years of age, married; good reference.
5050, Textile World Record, Boston, Mass.

**Boss Spinner** in a woolen mill or superintendent of 4 to 6 set knitting mill; worked on flannel goods, tweed and knit goods; familiar with all makes of mules; 49 years of age, married; good reference.
4947, Textile World Record, Boston, Mass.

**Boss Spinner** in woolen mill; worked on all classes of woolens and mixes; familiar with the J. & B. and D. & F. machines; 38 years of age, married; good reference; will not go West, South or Canada.
4976, Textile World Record, Boston, Mass.

**Boss Spinner** in woolen mill; worked on fancy cassimeres; familiar with D. & F. and J. & B. machines; 35 years of age, married; will not go West, South or Canada; good reference.
5002, Textile World Record, Boston, Mass.

**Overseer** in woolen spinning; worked on all wool, cotton and wool mixes, and all kinds of stock from 1/2 to 9 run; familiar with the D. & F., J. & B., and Whiteley machines, but prefers the D. & F.; will not go West, South or Canada; 40 years of age, married; good reference.
4898, Textile World Record, Boston, Mass.

## WORSTED MILL OVERSEERS.

**Supt. of Worsted Yarn Mill,** or overseer in any dept.; worked on carpet yarns, men's wear, worsteds, sales yarns and dress goods; familiar with all kinds of machinery, drawing, spinning, twisting, spooling and winding, also combs; 39 years of age, married; will not go West; good reference.
5090, Textile World Record, Boston, Mass.

## DYERS.

**Overseer** of woolen dyeing; worked on all classes of worsted and woolen goods; will not go West, South, or Canada; 37 years of age, married; good reference.
4875, Textile World Record, Boston, Mass.

**Overseer** of the woolen dyeing department or second hand; worked on worsted and woolen goods; familiar with all kinds of machinery; 21 years of age; will not go to Canada; good reference.
4888, Textile World Record, Boston, Mass.

**Woolen Boss Dyer** or superintendent of finishing and boss dyer; worked on all classes of goods; familiar with all the latest makes of machinery; will not go South, but prefers Phila.; 36 years of age, married; good reference.
4869, Textile World Record, Boston, Mass.

**Overseer** of woolen dyeing; worked on worsted yarn slubbing, worsted piece dyes, shoddies, etc.; familiar with the Klauder-Weldon yarn machines; 48 years of age, widower; good references.
4867, Textile World Record, Boston, Mass.

## DYERS

**Boss Dyer** in woolen mill, second hand, or salesman of dyestuffs; worked on raw stock and slubbing, any description of skein yarn, either woolen or worsted, piece dyes, either ladies' or gent's wear; familiar with the Klauder & Weldon dyeing machine, also English makes of machines; 27 years of age, married; good reference.
4933, Textile World Record, Boston, Mass.

**Overseer of Woolen Dyeing;** worked on wool, silk, cotton, jute, raw stock, and piece dyes, dress goods, flannels, meltons, suitings, government goods, and all kinds of blankets; familiar with all kinds of wool scouring machines, sargents, dryers, carbonizers, piece dyeing machines, etc.; will not go to Canada; 31 years of age, married; good reference. 4790, Textile World Record, Boston, Mass.

**Overseer of Woolen Dyeing;** worked on all kinds of knit goods in roll, cotton and worsteds, kerseys, stockinets, eiderdowns, astrachans, union nettings, cotton yarns, raw stock, wool and cotton; familiar with scouring and piece dyeing machinery, any make; will not go to Pa., N. J., Me., South, Canada, or West; 36 years of age, married; good reference.
4795, Textile World Record, Boston, Mass.

**Overseer of Dyeing;** worked on all classes of woolen and worsted goods, broadcloths, kerseys, unions, cotton, direct and developed sulphur, wool noils, shoddy rags, silk noils, etc.; will not go West, South or Canada; 30 years of age; good reference. 4416, Textile World Record, Boston, Mass.

**Second Hand** or overseer of dyeing; worked on cotton flannels, domets and drills; familiar with all makes of machinery as far as bleaching and dyeing of cotton piece goods goes; prefers North; 24 years of age; good reference. 4702, Textile World Record, Boston, Mass.

**Overseer in Small Dye House,** or second hand in large; worked on cotton and woolen yarns; will not go to Canada; 35 years of age, married; good reference. 4477, Textile World Record, Boston, Mass.

**Overseer of Woolen Dyeing;** worked on hats, wool and yarn; 30 years of age; good reference.
4852, Textile World Record, Boston, Mass.

**Overseer of Woolen Dyeing;** worked on worsteds, woolens, yarn, raw stock, also resists; 40 years of age, married; good reference.
4856, Textile World Record, Boston, Mass.

**Second Hand in Dye House** or chemist in mill; worked on cotton piece goods, mercerized and not mercerized, lawns, in fact all kinds of cotton piece goods; 27 years of age. 4482, Textile World Record, Boston, Mass.

**Overseer of Woolen Dyeing;** worked on all kinds of goods; familiar with all makes of machinery; will not go to Pa., N. Y., N. J., West, South or Canada; 45 years of age, married; good reference.
4485, Textile World Record, Boston, Mass.

**Overseer of Dyeing;** worked on worsted yarn, piece dyes, raw stock, wool and cotton shoddy, etc.; familiar with the Klauder, Weldon and Delehanty machines; will not go West, or South; 40 years of age, married; good reference. 4462, Textile World Record, Boston, Mass.

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## WOOLEN CARDERS.

**Second Hand** in woolen card room; worked on all classes of goods, but prefers a knitting mill; familiar with all kinds of machinery; 27 years of age; good reference.
5097, Textile World Record, Boston, Mass.

**Boss Carder** or assistant superintendent in woolen mill; worked on all classes of coarse and fine goods; familiar with the D. & F., Lombard, Cleveland and Barker condensers, also Davis & Furber and Bollette condensers; 37 years of age, married; will not go West, South or Canada; good reference.
5051, Textile World Record, Boston, Mass.

**Woolen Boss Carder;** worked on all kinds of stock; familiar with all kinds of machinery; 47 years of age, widower; will not go to Pa., N. Y., N. J., West, South or Canada; good reference.
5060, Textile World Record, Boston, Mass.

**Carder and Spinner** or carder on wool, shoddy and cotton mixes; worked on all classes of goods; familiar with all makes of machinery; 45 years of age, married; will not go to Mass., R. I., Conn., Me., N. H., Vt., N. J., or South; good reference.
5057, Textile World Record, Boston, Mass.

**Overseer of Carding** or spinning, or superintendent of a small plant; worked on hosiery, shawls, blankets, cassimeres, overcoatings, homespuns, covert cloths, wool, shoddy and cotton mixes from 1 to 9 run; familiar with all makes of machinery; will not go to Canada; 45 years of age, married; good reference. 4728, Textile World Record, Boston, Mass.

**Overseer of Carding** and spinning; worked on cotton, wool and shoddy mixes; mixes from 1 to 6 1/2 run; familiar with D. & F. cards and mules, also Cleveland cards; 25 years of age, married; good reference. 4729, Textile World Record, Boston, Mass.

**Overseer of Carding** and spinning in a small woolen mill, or boss spinner in a large mill; worked on woolen, woolen and cotton mixes, cotton and woolen carpet yarn, plush robes and mohairs; familiar with Furbush, Smith, Davis & Furber, Bridesburg, Asa Lee's mules and cards; 36 years of age, married; good reference. 4712, Textile World Record, Boston, Mass.

**Overseer of Wool Carding** for position of second hand; worked on all classes of goods made from wool, cotton and shoddy mixes on D. & F., Henderson and Lombard cards; 25 years of age; single; good references. 4717, Textile World Record, Boston, Mass.

**Overseer of Carding** or good second hand position; worked on all kinds of hosiery, wool, shoddy and cotton mixes, etc. Familiar with D. & F., Taintor, Furbush, Cleveland, Lombard, Bridesburg condensers, all kinds of roll and apron machines; 25 years of age, married; good reference. 4733 Textile World Record Boston, Mass.

**Overseer of Woolen Carding;** worked on wool, shoddy and cotton and wool mixes; cow hair, cotton waste and asbestos; worked on all English cards including waste cards, D. & F., Lombard, American and German cards; 28 years of age; good reference.
4751, Textile World Record, Boston, Mass.

**Overseer of Woolen Carding;** worked on blankets, dress goods, suitings, overcoatings, extracts and shoddy makings; familiar with all American makes of machinery; will not go South; 28 years of age, married; good reference.
4743, Textile World Record, Boston, Mass.

**Overseer of Woolen Carding** and spinning; worked on cotton and wool shoddy, especially cotton waste; familiar with Asa Lee, Lathan and Dobson & Barlow machines; 28 years of age, married; good reference.
4768, Textile World Record, Boston, Mass.

**Second Hand** of carding; worked on meltons, kerseys, venetians, broad cloths, ladies' dress goods, men's suitings, cotton, wool and shoddy mixes; familiar with D. & F., Lombard, Cleveland, and all kinds of American makes of carding machinery; will not go to Me., Pa., N. Y., N. J., West, South or Canada; good reference; 38 years of age, married. 4251, Textile World Record, Boston, Mass.

## WOOLEN CARDERS.

**Overseer of Woolen Carding;** worked on cotton, shoddy, wool and mixed stock for knit goods, all kinds of wool for worsted yarns; familiar with the D. & F., Lombard, Cleveland and Smith's cards; 35 years of age, married; good reference. 4781, Textile World Record, Boston, Mass.

**Second Hand** in the wool card room; worked on dress goods, 3 to 6 run, all wool and cotton mixes; has had some experience on shoddy; familiar with the D. & F. and Cleveland cards with all the latest improvements; 21 years of age; good reference; will not go to Pa., West, South or Canada.
4840, Textile World Record, Boston., Mass.

**Second Hand,** or overseer of woolen carding; worked on all classes of cassimeres, overcoatings, shawls, steamer rugs, kerseys and meltons; familiar with the D. & F., Barker, Lombard cards and the Bollette condenser; will not go to Pa., West, South or Canada; 43 years of age, married; good reference.
4854, Textile World Record, Boston, Mass.

**Boss Carder** in wool or knit mill; worked on wool, cotton and shoddy mixes, noils, etc.; familiar with the D. & F., Cleveland, Smith, Lombard and all other makes of cards; 42 years of age, married; good reference.
4905, Textile World Record, Boston, Mass.

## COTTON CARDERS.

**Cotton Classer,** boss picker or boss carder in cotton mill; worked on bagging to fine lawns; familiar with all grades of cotton; understands the business thoroughly; familiar with nearly all makes of machinery; has first-class recommendations; 43 years of age, married.
5106, Textile World Record, Boston, Mass.

**Cotton Classer;** familiar with all grades of cotton; understands the business thoroughly; familiar with all makes of machinery; has first-class recommendations; 24 years of age.
5104, Textile World Record, Boston, Mass.

**Card Grinder** or French comber in cotton mill; worked on all classes of goods; familiar with all makes of machinery; 28 years of age; good reference.
4891, Textile World Record, Boston, Mass.

**Cotton Boss Carder** or superintendent of cloth or yarn mill; worked on all kinds of cotton goods, coarse and fine, in cotton cloth and yarn mills, including colors of all kinds; familiar with all makes of cards, drawing frames and speeders, combers, etc.; 44 years of age, married; good reference.
4964, Textile World Record, Boston, Mass.

**Cotton Boss Carder** or second hand; worked on all classes of cotton goods used for cloth and knit; familiar with the Hetherington, Mason, Saco & Pettee, Dobson & Barlow, Whitin, Howard & Bullough machines; 29 years of age, married; will not go to Pa., N. J., South or Canada; good reference.
4889, Textile World Record, Boston, Mass.

**Cotton Carder** or superintendent of yarn mill; worked on coarse and fine; familiar with all makes of machinery; will not go South; 43 years of age, married; good reference.
4873, Textile World Record, Boston, Mass.

**Boss Carder** in cotton mill; worked on all kinds of cotton goods and up to 24 hank roving for hosiery yarn and weaving; familiar with all makes of American and English machinery; 30 years of age, married; good reference; will not go South or Canada.
5012, Textile World Record, Boston, Mass.

**Boss Carder** and spinner in an underwear mill; worked on underwear, sweaters and cloth; familiar with the D. & F. and Jenks cards and J. & B. mules; 51 years of age, married; good reference.
5007, Textile World Record, Boston, Mass.

**Overseer of Cotton Carding** or second hand; worked on carded and combed, white and colored goods from 1 to 12 hank roving; familiar with the Saco & Pettee, Whitin, Howard & Bullough, Whitin combers and Kitson pickers; will not go to Pa., Vt., or South; 28 years of age, married; good reference.
4813, Textile World Record, Boston, Mass.

## WOOLEN DESIGNERS.

**Supt. Designer,** or boss weaver in woolen mill; worked on woolen and worsted goods; has good knowledge of carding, spinning, dyeing and finishing; thoroughly understands weaving, dressing, etc.; 32 years of age, married; good reference.
5108, Textile World Record, Boston, Mass.

**Designer** or designer and asst. supt. in woolen mill; worked on all classes of goods; familiar with English jacquard dobbies and plain looms; Crompton, Knowles jacquard coating and cotton looms, also the Draper looms; will not go to Canada; 26 years of age; good reference.
5098, Textile World Record, Boston, Mass.

**Designer** or assistant superintendent or superintendent in small woolen or worsted mill; worked on cotton fancy dress goods, cotton and worsted effects in men's wear, worsted and woolen dress goods and men's wear, kerseys, broadcloths, cloakings, etc.; familiar with all makes of machinery; 37 years of age, married; good reference; will not go West, South or Canada.
5047, Textile World Record, Boston, Mass.

**Assistant Designer** in a small woolen mill; worked on woolens and worsteds; familiar with the Knowles looms, and dressing reel; 20 years of age; will only go to Mass., R. I., and Conn.; good reference.
4886, Textile World Record, Boston, Mass.

**Designer** or assistant superintendent in woolen mill; worked on fancy worsteds and woolens; will not go to Canada; 25 years of age; good reference.
4937, Textile World Record, Boston, Mass.

**Boss Spinner** in woolen mills; worked on broadcloths, kerseys, cassimeres, etc.; familiar with the D. & F. and J. & B. machines; 40 years of age, married; will not go to N. H., Vt., Pa., N. Y., N. J., West, South or Canada; good reference.
4991, Textile World Record, Boston, Mass.

**Designer** or assistant superintendent in woolen mill; has worked on fancy worsteds, fancy woolens, government goods, broadcloths, kerseys and meltons; familiar with D. & F. carding, spinning, dressing, spooling and twisting machinery, Crompton & Knowles looms and various makes of finishing machinery; 27 years of age; good reference.
4999, Textile World Record, Boston, Mass.

**Designer** or assistant superintendent in woolen mill; has worked on fine and medium worsteds, fine woolen suitings, top coatings, fancy piece dyes, broadcloths, overcoatings, meltons and plain and fancy kerseys; familiar with the Crompton & Knowles looms; will not go South or Canada; prefers the N. E. or Middle States; 35 years of age, married; good reference.
4995, Textile World Record, Boston, Mass.

**Designer** or assistant designer in woolen mill; worked on piece dyes, serges, fancy worsteds, mercerized piece dyes, 2 and 3 ply cloths and backing cloths; will not go to Pa., N. J., West, South or Canada; 23 years of age; good reference.
5056, Textile World Record, Boston, Mass.

**Designer** or assistant superintendent in woolen mill; worked on serges, plain and fancy worsteds, fancy woolens, resist piece dyes and cotton worsteds; will not go West, South or Canada; 28 years of age, married; good reference.
5053, Textile World Record, Boston, Mass.

**Supt., Designer** or asst. supt. in woolen mill; worked on fancy goods, piece dyes, woolen and worsted dress goods; 48 years of age, married; good reference.
5021, Textile World Record, Boston, Mass.

**Asst. Designer** in woolen mill; familiar with all classes of woolen goods; will be open for a position after June 1; 23 years of age; good reference, will not go to Canada.
5019, Textile World Record, Boston, Mass.

**Asst. Supt., Designer** or boss weaver in woolen mill; worked on all classes of goods; 43 years of age, married; good reference; will not go South or Canada.
5025, Textile World Record, Boston, Mass.

**Asst. Designer** in woolen mill; worked on woolens and worsteds of all kinds; familiar with the Crompton and Knowles looms; 22 years of age; will not go West, South, or Canada; good reference.
4945, Textile World Record, Boston, Mass.

## MISCELLANEOUS.

**Accountant,** office manager, or pay master; worked on cotton duck; will go anywhere for a good position; good reference.
5088, Textile World Record, Boston, Mass.

**Boss Wool Comber;** worked on all kinds of goods; familiar with all makes of combing machines; 45 years of age, married; will not go to N. Y., or South; good reference.
5096, Textile World Record, Boston, Mass.

**Supt.** over sorting room, pulling and grading of woolen rags and shoddies; worked on carpet cloth goods; familiar with Kitson rag machine and rag dusters; will not go to Pa., Me., N. H., South or Canada; good reference.
5105, Textile World Record, Boston, Mass.

**Overseer of Starching;** worked on linings and drills; familiar with a number of the different makes of machines; will not go West, South or Canada; 38 years of age; good reference. 4782, Textile World Record, Boston, Mass.

**Chief Chemist;** position wanted by a man 30 years of age, single, with first class references; would like to associate himself with some large textile manufacturing concern where the services of a good chemist would be appreciated.
4938, Textile World Record, Boston, Mass.

**Master Mechanic;** familiar with all kinds of cotton machinery, water wheels, engines, pumps of all kinds; 34 years of age, married; will not go to Pa., N. Y., N. J., West, South, or Canada; good reference.
4924, Textile World Record, Boston, Mass.

**Loom Fixer;** worked on all classes of goods; familiar with the Crompton, Knowles and Thayer looms; will not go to Me., Vt., Pa., N. Y., N. J., West, South or Canada; 30 years of age, married; good reference.
4861, Textile World Record, Boston, Mass.

**Overseer** of worsted drawing or section hand; worked on worsted yarns for cloth; familiar with English and cone drawing machinery; 32 years of age, single; good reference.
4882, Textile World Record, Boston, Mass.

**Overseer** of scouring, carbonizing and understands sorting; worked on all kinds of wool, carbonized and scoured, also carded and combed wools; familiar with all makes of machinery; will not go West, South, or Canada; 29 years of age, married; good reference.
4872, Textile World Record, Boston, Mass.

**Master Mechanic;** worked on all kinds of cotton and woolen machinery, piping, shafting, water wheels, engines and electricity; will not go to Canada; 36 years of age, married; good reference.
4871, Textile World Record, Boston, Mass.

**Bookkeeper,** paymaster, purchasing agent, or superintendent of a cotton mill; will not go South; 45 years of age, married; good reference.
4907, Textile World Record, Boston, Mass.

**Boss Comber;** worked on Egyptian, American and Sea Island cotton; familiar with Whitin, 6 or 8 heads, Dobson & Barlow, single and double nip, Nasmith combers, also German makes of combers; wishes to go South; 24 years of age; good reference. 4428, Textile World Record, Boston, Mass.

**Overseer** of ring or mule spinning, or both, or assistant superintendent; worked on yarns for thread; familiar with the Dobson & Barlow mules, Howard & Bullough American frames, English and Mason frames; 31 years of age, married; will go anywhere for a good position, but prefers the Eastern States; good reference.
4841, Textile World Record, Boston, Mass.

**Electrician;** worked on A and D C high and low potentials; general construction work and maintenance of plants; familiar with various makes of machinery; will not go West, South or Canada; 27 years of age, married; good reference.
4741, Textile World Record, Boston, Mass.

**Bookkeeper,** office manager or paymaster by a married man 29 years of age; has had over ten years' experience; all the late methods; also banking experience; first class references. 4715, Textile World Record, Boston, Mass.

Established 1870

**John Heathcote & Son**

Providence, R. I.

Builders of Improved

**Cloth Tentering and Drying Machinery**

for WOOLENS, WORSTEDS, FELTS, etc.

Built Upright or Horizontal with Low Down Feed

Ventilating Fans a Specialty

Send for Catalogue

**TRADE MARKING MACHINES**

ALSO YARDSMARKING

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FLAXON

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ECONOMY LINEN

DONE WITH OTHER OPERATIONS COSTS PRACTICALLY NOTHING
WOOL COTTON LINEN SILK ALL FABRICS

PARKS & WOOLSON MACHINE CO SPRINGFIELD VERMONT

**NEW ENGLAND BUTT COMPANY,**

304 PEARL ST., PROVIDENCE, R. I.

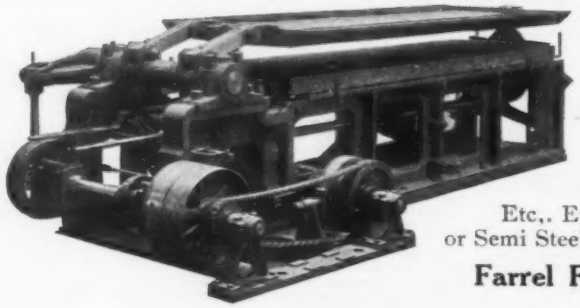
**BRAIDING MACHINERY**

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

SOLID SASH AND CURTAIN CORDS,

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS.



**Single and Double Felt Hardeners**

Chilled and Soft Iron Rolls. Heavy Transmission Machinery. Machine Moulded and Machine Cut Gearing, to 20 ft. diameter, Etc,. Etc. Heavy Castings, in Gray Iron or Semi Steel.

**Farrel Foundry and Machine Co.,**
ANSONIA. CONN.

## Old Age Pensions and Industrial Insurance.

Continued from page 84.

There is no maximum or minimum rate of pensions, and all from superintendents down will be figured by the above rule which gives the following amounts for various rates of wages and terms of service.

ESTIMATE OF AMOUNT OF PENSIONS FOR VARIOUS RATES OF WAGES AND TERMS OF SERVICE.

| Term of Service | Average Monthly Rate of Wages. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | $36 | $40 | $45 | $50 | $60 | $70 | $80 | $90 | $100 |
| 20 years | $10.80 | $12.00 | $13.50 | $15.00 | $18.00 | $21.00 | $24.00 | $27.00 | $30.00 |
| 25 " | 12.60 | 14.00 | 15.75 | 17.50 | 21.00 | 24.50 | 28.00 | 31.50 | 35.00 |
| 30 " | 14.40 | 16.00 | 18.00 | 20.00 | 24.00 | 28.00 | 32.00 | 36.00 | 40.00 |
| 35 " | 16.20 | 18.00 | 20.25 | 22.50 | 27.00 | 31.50 | 36.00 | 40.50 | 45.00 |
| 40 " | 18.00 | 20.00 | 22.50 | 25.00 | 30.00 | 35.00 | 40.00 | 45.00 | 50.00 |
| 45 " | 19.80 | 22.00 | 24.75 | 27.50 | 33.00 | 38.50 | 44.00 | 49.50 | 55.00 |
| 50 " | 21.60 | 24.00 | 27.00 | 30.00 | 36.00 | 42.00 | 48.00 | 54.00 | 60.00 |
| 55 " | 23.40 | 26.00 | 29.25 | 32.50 | 39.00 | 45.50 | 52.00 | 58.50 | 65.00 |

Why is it possible to give an amount of insurance under the two plans of the Benefit Association and the pension system, which it would not be possible for members to purchase at the same cost of any commercial insurance company, or under any fraternal or mutual benefit society?

Because all of the operating expenses, all the benefits for injuries received in the service, and 25 per cent. of the amount contributed by the members toward sick benefits, death claims from sickness, and annuities, are paid for by the company, in addition to the entire cost of pensions, which are administered under a separate plan. Every dollar contributed by the members is returned to them plus about a dollar and a half from the company, without any deductions for operating expenses.

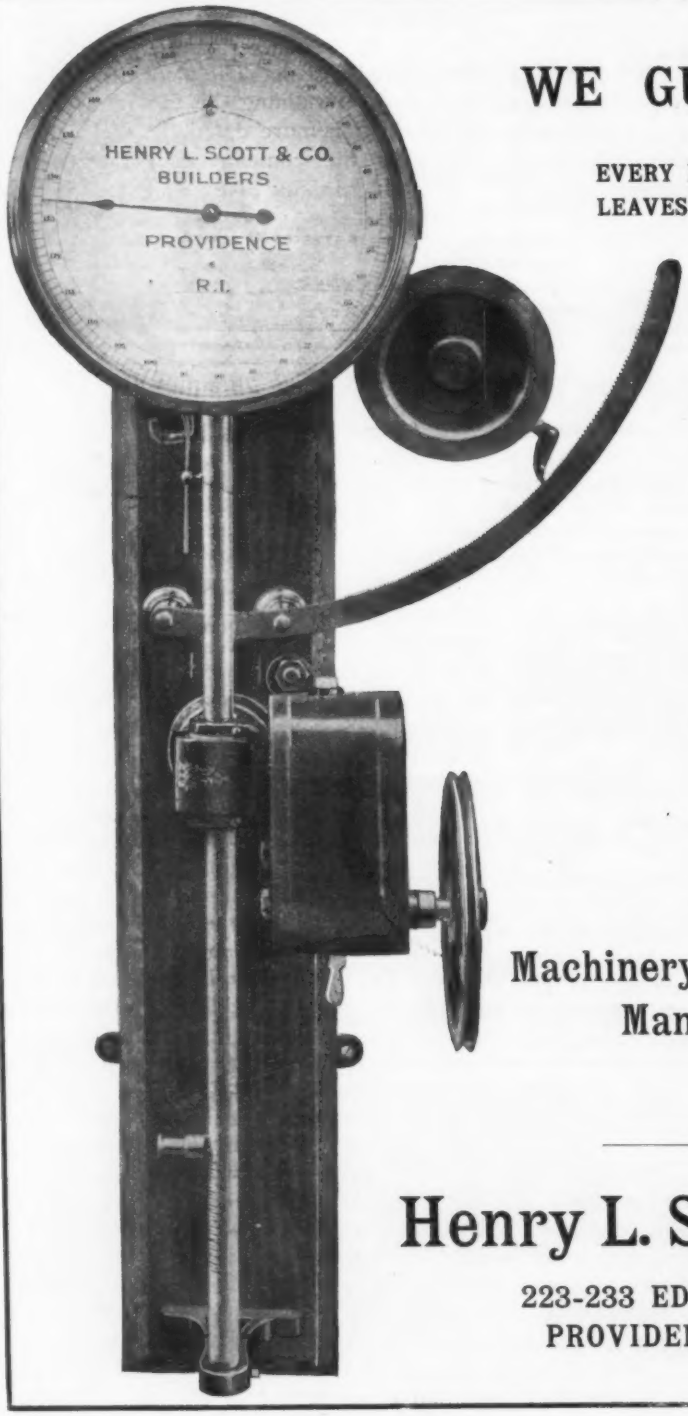
. . .

What is the purpose of the company in assuming these obligations?

In the case of accidents it is the replacing of a hap-hazard system, more or less dependent upon the varying discretion of department managers with a uniform system guaranteeing a just and equal treatment of every case. In a wider sense it is a definite statement by the company of the general principle under which they have acted for many years, that injuries, so far as they are a necessary incident to industry, are a part of the cost of production and should be borne to that extent by the consumer, and not entirely by the injured person. The plan provides for a means of determining this factor of the cost of production more definitely, and of insuring both the company and the employe against it. In the case of sickness it is an extending of the company's past relief to individuals and to tubercular patients so that it is not dependent entirely upon charity, but is an encouragement to the efficient and provident employes who are willing to make a sacrifice to secure the additional benefits guaranteed.

Both injuries and illness occasion a large economic waste to the company as well as to the employes, on account of lost time, idle machinery and ineffective wor.k It is to the direct interest of the company as well as the individual to bring about a reestablishment of health and consequently efficiency by supplying the best conditions possible for recovery.

In the case of pensions the past practice of the company has tended toward their bestowal in cases of necessity. The new regulation makes a pension dependent on the part of the company on long, efficient and faithful service; and further on the part of the employe upon his willingness, independently of it, to supplement his pension by a definite degree of providence on his own part in the form of an annuity. This makes a pension not so much a charity as an acknowledgment of the additional value of length and fidelity of service; it provides a pension

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**Yarn and Cloth**
**Testers**
**Roving Reels**
**Twist Counters**
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**Reels, Scales**
**Etc.**

**Machinery**
**Manufactured**
**On Contract**

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## Henry L. Scott & Co.

223-233 EDDY STREET
PROVIDENCE, R. I.

for the efficient, thrifty employe as a matter of sound business policy, rather than to the less efficient and improvident hand as a matter of charity.

Taken as a whole, the company presents this plan as the execution of a constructive policy which will accrue to the benefit of all, and work toward a closer alliance between the interests of the company and its employes.

## MILL NEWS.

California, Dolgeville. At a meeting of the directors of the Alfred Dolge Felt Co., it was resolved to change the name of the company to the Standard Felt Co. In accordance with the laws of California they cannot operate under the new name until they have advertised the change for 30 days and business will not be done under the new style until Sept. 23. Wm. G. Kerckhoff of Los Angeles, is the new president of the company. Wm. D. Mann is superintendent of manufacturing and attends to all the buying for mill supplies. All the selling is under the direction of Geo. M. Eggleston, sales manager. Offices are maintained at 96-98 Reade St., New York, and at 282-84 Fifth Ave., Chicago. Business on the coast is done from the mill.

Massachusetts, South Royalston. The American Woolen Co. has bought a tract of land from Everard B. Hanson.

Massachusetts, Thorndike. The mills of the Thorndike Co. have resumed the full time schedule after running for several months on short time.

Massachusetts, Ware. The cloth department of the Otis Co. has resumed the full time schedule.

Minnesota, Winona. It is said the Oxford Linen Mattress Co., a Maine corporation with authorized capital stock of $600,000, controlled by the Oxford Linen Mills of North Brookfield, Mass., have decided to erect six buildings in Winona, and that preliminary plans have been approved. Option has been secured on ten acres of land suitable for a manufacturing site. Another linen mill proposition is before the business men of Winona. Wm. J. Robinson, president of the United States Linen Flax Corp. of Chicago, a $3,000,000 corporation which claims to have a process for reducing flax straw to fiber in a few hours, has been looking over available sites with a view to establishing a plant. Offices are maintained in Chicago at 203-5 Fifth Ave. by the United States Linen Flax Corporation.

Pennsylvania, Philadelphia. It is reported that the Estate of Irvin C. Kerkeslager have shut down the new French spinning plant, which was equipped by Mr. Kerkeslager previous to his death, containing 1800 spindles operated on worsted yarns up to 45s. It is not known whether it will be started up again.

New Hampshire, Penacook. The Dustin Island Woolen Mills have resumed manufacturing, after an idleness of three weeks.

*New Jersey, Raritan. The Raritan Woolen Mills have resumed manufacturing after a shutdown of one week to make necessary repairs. This discredits rumors that the company has stopped work indefinitely.

New York, Jamestown. The Odsonia Mills, a branch of the Cleveland Worsted Mills Co. of Cleveland, Ohio, has begun manufacturing yarns. The plant was formerly known as the Meadowbrook Mills. Complete alterations have not been made and this work is still in progress in some parts of the plant.

*Utah, Provo. Some of the machinery in the Knight Woolen Mills, formerly the Provo Woolen Mills, is in operation on orders and the company is advertising for additional help. Lines of men's and boy's suitings, ladies' dress goods, cloakings and blankets are being made. As noted in an earlier report, the capital stock is $150,000. Jesse Knight is president; R. J. Murdock, treasurer, and James Dow, agent, superintendent and buyer. Curtiss & Warren of Chicago and New York, are the selling agents.

Pennsylvania, Philadelphia. The Rex Dyeing & Finishing Co., dyers of hosiery and skein yarns on Willard St., below Frankford Ave., have closed down their plant pending a meeting of their creditors.

Pennsylvania, Philadelphia. The Hasley Manufacturing Co., who have been located at 4060 Orchard street, Frankford, where they manufactured cotton and woolen dress goods on 31 broad looms, with D. Holden as president, Robert McCuen, vice-president; Thomas W. Holden, treasurer; and John Hasley, manager and superintendent, have removed their entire plant to a suburb of Toronto, Ontario, Canada, parties from that section having offered them good inducements for the removal of their company to Canada.

Pennsylvania, Philadelphia. Thomas Clegg trading as Edward Clegg's Sons, has petitioned the U. S. District Court for his discharge as a bankrupt. Edward Clegg's Sons formerly conducted their business at Hancock and Berks Sts., where they manufactured shoddies and wool stocks

Pennsylvania, Philadelphia. The large five-story tenement building used for textile purposes at the S. W. Corner of 5th and Columbia Ave. will be greatly enlarged. Additional stories and other improvements are to be added.

Pennsylvania, Royersford. John M. Lewin is interested in a project to establish a plant here for the manufacture of embroidery and insertions.

Pennsylvania, Weatherly. The Roscoe Broad Silk Mill, incorporated in August, is a reorganization of the Onoko Mfg. Co., later known as the Weatherly Silk Mfg. Co. John G. Hutchinson is superintendent and manufacturer.

## EVERYTHING IN CARD CLOTHING

For Worsted and Woolen Mills

——SPECIALTIES——

Card Clothing for Spinning and Finishing Purposes. Steel Wire Clothing.

CONSOLIDATED CARD CLOTHING OF GERMANY.

(Vereinigte Kratzenfabriken, Aachen-Forst, Germany.)

AMERICAN AGENTS:

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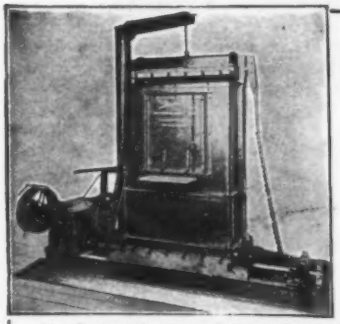
**Houghton's New Method of Weighting Top Rolls.** A panacea for uneven yarn. Gives any desired weight on any roll. Free samples will be furnished on receipt of eight cents for postage. Send name of builder of frame when writing for sample. Descriptive circular on request.

**Houghton's Metal Thread Boards.** Now used on one-fourth of all spindles in the U. S. A. 90 per cent. of new spindles are equipped with them. An unparalleled success. They advertise themselves.

**Houghton's Metal Doffing Rail** Spells Perfection. Automatically held in position for spinning or doffing. Can never get out of order. No bobbins split in holding up this rail for doffing.

**Houghton's Hardened Thread Guides.** In use seven years and still doing good work. No other guides as good, nor do they last as long.

**L. T. HOUGHTON, Worcester, Mass.**



Our Latest Improved Steel Power Press with New Steel Link Chains

## Minnich Baling Press

**for all kinds of products.**

Must turn out more bales with less labor and power than any press in the market.

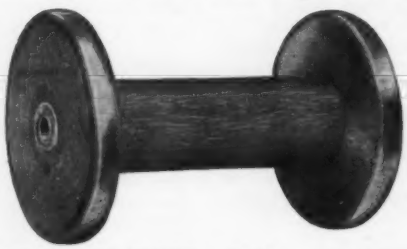
*Send for Circular.*

**Minnich Machine Works,**

Lancaster Co. Landisville, Pa.

## Our Patented Metal Protected Spool Is Making Good

- Triples the life of the spool.
- Will not rust.
- Does not stain the yarn.
- Protects the outside and inside.
- Made in all styles and sizes.



- No rough or splintered edges to break the yarn.
- Weighs about one ounce more than an all-wood spool.
- Samples and particulars sent on request.

LESTERSHIRE SPOOL & MFG. CO., Lestershire, New York

*New Jersey, Waldwick. The Lancashire Bleaching & Finishing Co., incorporated in July with capital stock of $100,000, is a reorganization of the Arkwright Mfg. Co., dyers, printers and finishers of cotton piece goods. Bernard Semel of New York, Paul B. Wells, Truman Holl, David Kornbluch and Edward C. Ely of Waldwick are the men interested. The plant contains three dyeing machines, 1 printing machine and is operated by steam and water power.

New York, Corona. The Corona Braid Co. will go out of business some time this fall.

New York, Matteawan. The silk throwing mill, formerly the property of Arthur V. Rockwell, will be continued in operation by his widow. E. E. Willis will continue as superintendent of manufacturing.

New York, New York City. It has been recommended that the Standard Cordage Co. be allowed to go into voluntary dissolution as petitioned for by the directors some time ago.

New York, Oswego. Chas. W. Becker of Amsterdam, New York, has leased the Mohawk Mfg. Co. for five years from December 1. New machinery will be placed in the mill and the capacity largely increased before manufacturing is resumed on January 1. John R. Berry of Little Falls will be superintendent.

*North Carolina, King's Mountain. Arrangements have been made by J. C. Plonk, president of the Cherokee Falls Mfg. Co. of Cherokee Falls, S. C., who recently purchased the Lula Cotton Mill of King's Mountain, for the operation of the plant. As noted previously, the Phoenix Mfg. Co. has been incorporated with capital stock of $200,000 and this new corporation will take over the plant and begin manufacturing at once. R. F. Roberts, J. A. Durham and E. A. Smyth are interested with Mr. Plonk.

North Carolina, Mocksville. Fred H. White of Whitted & White, Inc., Charlotte, N. C., is interested in a movement to establish a $225,000 cotton mill company in Mocksville. The matter is in such indefinite shape at this time, however, that no information can be given out.

Ohio, Cincinnati. The Ohio Valley Cap Co. has been incorporated with capital stock of $5,000 by David E. Woolley, Chas. Kendle, Sol Cohen, Arthur N. Friberg and Henry J. Myer.

*Ohio, Zanesville. About $80,000 has been subscribed to stock of the Zanesville Woolen Mill Co., a new company being promoted by the Chamber of Commerce, to operate the old Zanesville Woolen Mfg. Co.'s plant. $20,000 is yet to be subscribed before arrangements can be completed for the beginning of manufacturing. The mill buildings have recently been put in good repair and if the proposed woolen mill does not occupy the entire plant or if it is not successfully carried through, some of the space will be leased with power for manufacturing purposes.

Oregon, Salem. Eugene Bosse of Salem, has secured a site for a hemp and jute factory near Klamath Falls, Oregon, and will shortly begin work on a factory building.


**The Metallic Drawing Roll Co.**

INDIAN ORCHARD, MASS.

MANUFACTURERS OF

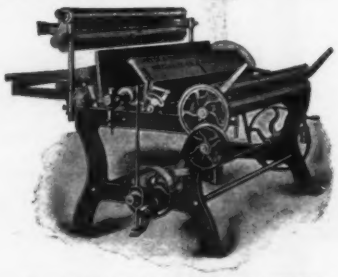
**Metallic Rolls**

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

WRITE FOR PARTICULARS.

**WOOL BURRING and PICKING MACHINERY**

**CLOTH FINISHING MACHINERY**



DEWING OR SPRAYING MACHINE

**Curtis & Marble Mch. Co.**

WORCESTER, MASS.

**The Vulcan Roving Can prevents broken ends**

in roving by its smooth, glossy inside finish and true running on the card table. The body is made of the best chemically treated fiber which has many of the qualities of rawhide. All rivets are burred so they cannot draw out. Rings are made of steel and have rounded edges. Every can is accurate in size and perfectly round. They are built for long continued satisfactory service. Write for prices and list of users.

**James Hill Manufacturing Co.,**

PROVIDENCE, R. I.

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**By the Kaumagraph Process**

It is the scientific, practical and economical method. **Absolutely uniform results** on **any fabric** guaranteed.

Send samples of your material and we will stamp them and return for your inspection.

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**110-114 West 32nd Street, New York**

**1050 TIERING MACHINES SOLD TO DATE**

(*One concern has nineteen*).

**We build a reliable machine SAFE, convenient and durable.**

We can tell you a lot of things about Tiering Machines if you will only ask us.

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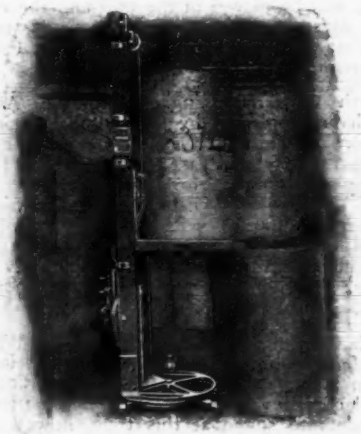
**ARE YOU INTERESTED IN SAVING MONEY** In Your Factory, Mill or Warehouse ?

If you have Boxes, Cases, Barrels, Bales, Rolls of Paper, Cordage, etc., to be put in a storehouse and do not already have a **REVOLVING** Portable Elevator, we can save you money.

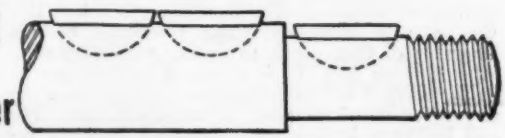
Write for our Textile Catalog.



We also make Hand Trucks.

**New York Revolving Portable Elevator Co.,**
**458 PRINCETON AVE. JERSEY CITY, N. J.**
*Please mention Textile World Record.*

**Key Seating Attachment**
FOR
**Whiton Gear Cutter**



We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

**THE D. E. WHITON MACHINE CO.,**
**19 Oak Street, New London, Conn.**

Virginia, Fredericksburg. The Business Mens' Association has appointed a committee to confer with the Melville Woolen Co. regarding arrangements to rebuild the woolen mill. Citizens of Fredericksburg will subscribe to stock in the enterprise if the mill is rebuilt. It will be remembered that the Melville Woolen Co.'s plant was recently destroyed by fire and that the company leased the Chambersburg Woolen Co.'s plant at Chambersburg, Pennsylvania, for one year with option of purchasing.

Washington, Washougal. Citizens of this place have subscribed $17,000 as a bonus and donated a site for a woolen mill. It is reported a mill will be built at once and will be operated by electric power.

*Wisconsin, Kenosha. Nothing can be learned of the reported project to locate a woolen mill at Kenosha, in which German manufacturers of woolen goods were reported interested. The general impression is that there is no basis for the report that a plant will be located here.

Georgia, Columbus. E. B. Reed is at the head of a new company organized for the purpose of building a new mill on the Alabama side of the Chattahoochie river, just across from the mills of the Columbus Mfg. Co., Bibb Mfg. Co. and Swift Spinning Mills. It is said that the new company has ample capital and will build a large cotton mill.

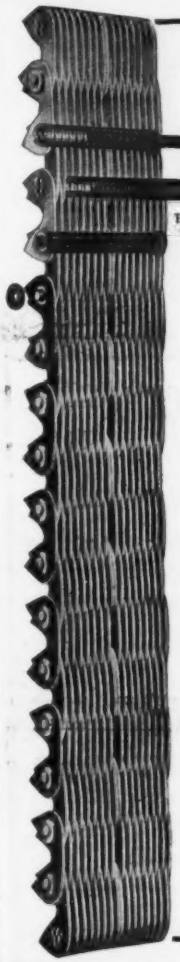
Indiana, Brazil. John Adams, representing the Collins estate, has completed negotiations with the Brazil Factory Promoting Club and will erect a building suitable for use as an underwear factory. The Promoting Club is in communication with a knit goods manufacturer in Chicago, who it is said will occupy the buildings as soon as it is completed.

Kansas, Salina. A rug factory for making over rugs and old carpets has been started by A. N. Olander and Fred J. Hedderstedt in connection with their carpet cleaning plant. Two looms with carpet cutter, raveling machine, spooling machines and sewing machines have been installed. Cotton warps will be bought.

Louisiana, New Orleans. At a meeting of the first mortgage bondholders of the Maginnis Cotton Mills, a proposition was considered which may result in the three mills of the Textile Mills Corp., the Lane Mills, the Maginnis Mills, and the Wesson Mills, being operated separately and by practically the original owners. It is understood that before long some plan will be devised which will result in the mills being put in operation again.

Maine, Lewiston. At the annual meeting of the Bates Mfg. Co., the stockholders approved the plan to increase the capital stock from $1,200,000 to $2,000,000.

Massachusetts, Boston. It is expected the Maverick Mills will begin operations within the next 60 days. Jere A. Downs was re-elected treasurer at the annual meeting.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SILENT CHAIN

ITS WORK IS DISTRIBUTED EVENLY OVER THE ENTIRE SURFACE OF THE PIN and with the compensating shape of the links **perfection of operation is maintained** throughout the life of the chain.

How a true chain minimizes power-transmission expense is explained in "Maximum" Silent Chain Book No. 402 "BB."

**Link-Belt Company**

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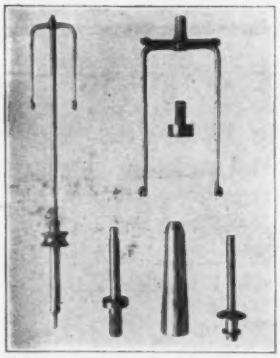
Seattle, 439-440 N. Y. Block

**CALDER MACHINE WORKS**



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**Spindles**
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**Caps**
**Tubes**
and all parts for Worsted and Silk Spinning.

Spindles and Flyers of every description promptly repaired.

**420 North Third St., Phila. Pa.**

TEXTILE MACHINERY CO.

DUNN FLYER

60 INDIA ST.
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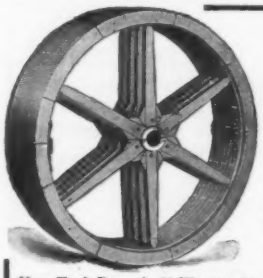
150
Narrow Fabric Mills
are now using our battens, shuttles, quills and fibre pinions.
ROBERT G. PRATT
Worcester, Mass.



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SAGINAW, MICH., U. S. A.
New Illustrated Catalogue on request

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MAKERS OF
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Represented in the South by
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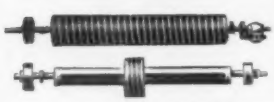

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Always Specify "DRONSFIELD" Grinders
The Grinders of World-Wide Fame

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Textile Machinery Importers, Boston, Mass.

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Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery

Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.

Special Machinery Built. General Machinery Repairs.
Relagging Picker Cylinders a Specialty.

"Marathon"
Oak Tanned Belting
Worsted Aprons

R. H. HOOD COMPANY
1842 Germantown Ave., Philadelphia, Pa.

Joseph Dumas has accepted the position as overseer of finishing at the Richardson & Foster Co., Central Falls, R. I. He was formerly engaged at Woonsocket, R. I.

James E. Kingsley, overseer of weaving at the Edwards Mfg. Co., Augusta, Me., for the past 27 years, has resigned. He is one of the oldest overseers employed at this company.

Fred Jones, overseer of carding at the lower Renfrew Mill, North Adams, Mass., has resigned. He has been in the employ of this company for over twenty years.

Geo. A. Elliott has accepted a position as overseer of spinning at Ludlow, Vt. He comes from E. Rochester, N. H.

David F. Stewart, overseer of dyeing at the Cocheco Woolen Mfg. Co., E. Rochester, N. H., has severed his connection with that company.

John G. Moore, who held the position as second hand of dyeing at the Devonshire Mills, Goff's Falls, N. H., has been promoted to the position of overseer.

Alex. Melrose, overseer of dyeing at the Devonshire Mills, Goff's Falls, N. H., has resigned to accept a similar position with the Webster Woolen Co., Sabattus, Me.

Chas. Whitehead, overseer of weaving at the Narragansett Worsted Co., No. Oxford, Mass., has severed his connection with that company after six years of service.

D. L. Osgood has been appointed overseer of spinning at the Harmony Mills, Cohoes, N. Y. He was formerly employed at Northbridge, Mass.

Elmer Manchester of Taunton, Mass., has been appointed overseer of carding at the Merchants Mfg. Co., Fall River, Mass., succeeding John F. Miller.

Linwood Green, overseer of dyeing at the Forest Mills Co., Bridgton, Me., has severed his connection with that company to accept a similar position with the Cocheco Woolen Mfg. Co., East Rochester, N. H.

Wm. McKinnon has accepted the position as overseer of dyeing at the Forest Mills Co., Bridgton, Me. He was formerly employed at the Merrimack Woolen Co., Lowell, Mass.

Alfred Taylor, overseer of the cloth room at the Bernon Mills, Georgiaville, R. I., has resigned.

Frank Kruter, for several years in charge of the wet finishing department at the Brightwood Mills, No. Andover, Mass., has resigned, to accept a similar position in Passaic, N. J.

Edward E. Cole has accepted a position with the Kilburn Chemical Co., of New York City, to represent them in Massachusetts.

J. A. Guest, superintendent of the spinning department at the Harmony Mills, Cohoes, N. Y., has severed his connection with that company.

John White has accepted the position as designer at the Pawcatuck Woolen Mills, Westerly, R. I.


**Rain-Proofing**

**"Relim"**

**of course,**

**Porous Rain-proofers**

**of Silks, Woolens, and Cotton goods,** such as Duck, Drills, Fine Twills, Gaberdine Cloths, Prints, Flannels, etc. Tent and Awning Cloths a specialty.

*Samples Proofed Without Charge.*

**MILLER & HARRISON**

**Wissahickon, - Philadelphia, Pa**

**A. G. THURSTON & SON,**

MANUFACTURERS OF

**Fluted Rolls, Pressers for Flyers**

**AND GENERAL MACHINERY**

Specialties made of Renecking, Refluting, Filing and Honing of all kinds of Rolls. Flyers Repaired and Fitted with any desired style of Pressers, Spindles Straightened, Restepped and Retopped.

Box 528. FALL RIVER, MASS.

**Lowell Crayons**

Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

**Lowell Crayon Co.,** Original Manufacturers **Lowell, Mass.**

Trade Mark on every box.

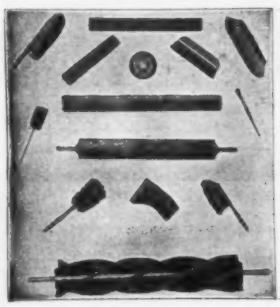
**TEXTILE BOOKS**

**ALL THE GOOD ONES**

Send for Catalog

**Lord & Nagle Company**

Textile Publishers BOSTON, MASS.



S. R. MASON, Treasurer

**MASON BRUSH WORKS**

Mill and Machine Brushes

Repairing a Specialty.

Worcester, Mass.

JOHN E. KENDRICK, President. MYRON FISH, Treasurer. M. C FISH, Secretary

# American Supply Co.

**Manufacturers of Reeds, Harness, Belting and General Mill Supplies**

We make a specialty of Harness for American Warp Drawing-in Machine

OFFICE and STORE—135-137 Washington St., Providence, R.I. FACTORIES—Central Falls, R.I., and Fall River, Mass.

*Spindles*
*Flyers*
*Repairs*
*of all kinds*

## F. A. & P. HALL,

*DOUBLING and SPOOLING MACHINES*

LAWRENCE, MASS.

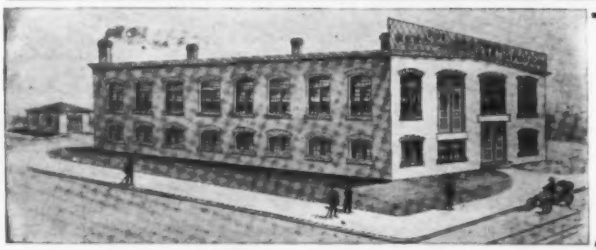
*Caps*
*Tubes*
*Spinning*
*Machinery*
*Parts*

## Steel Heddle Manufacturing Co.

2110-18 W. Allegheny Ave, Phila., Pa. Manufacturers of

**STEEL HARNESS and FRAMES**

Sole Selling Agents { For England, Ireland, Etc., Thomas E. Power & Co., Bradford, England
For Japan and China, Shewan Tomes & Co., 10-12 Broadway, N.Y. City



Established 1834 Incorporated 1900

## The J. A. Gowdey Reed & Harness Mfg. Co.

JAMES WILSON, Pres. and Treas.

Loom, Leice and Hook Reeds
Metal Reeds for Silk Weaving
Tempered Steel Reeds
All kinds of Warping Combs

Prompt Deliveries. Satisfaction Guaranteed
Large Stock of Raw Material Constantly on Hand

**1224 No. Main St., Providence, R.I.**

## Shaw's "Victor" Travelers

Manufactured by

## VICTOR SHAW RING TRAVELER CO.

Incorporated 1899.

23 Sabin Street, PROVIDENCE, R. I.

U.S. RING TRAVELER CO.

## U. S. RING TRAVELER CO.

MAKERS OF ALL STANDARD

Spinning and Twisting Travelers
of every description. Wire Specialties of all kinds.

92 Westfield Street, - - PROVIDENCE, R, I.

AMOS M. BOWEN, Treas.

BOSTON MASS. BRADFORD ENG.

## RICHARDS, ATKINSON & HASERICK

IMPORTERS

TEXTILE MACHINERY
MILL SUPPLIES
EGYPTIAN COTTON

PHILADELPHIA OFFICE "THE ARCADE"

Established 1796

Special shaped carbon, black diamond, pointed tools for turning paper, rag, corn husk and cotton calender rolls, hard rubber, fibre, etc. Manufactured by

Thos. L. Dickinson, Successor to John Dickinson, 64 Nassau St. New York City.

Connecticut, New London. A small addition will be built to the Thames Dyeing & Bleaching Co.'s plant, of frame construction, adjoining the main building. This is a new concern which began operations only a few weeks ago.

*Illinois, Zion City. A number of lace making machines for the Zion Lace Industries, operated by Marshall, Field & Co., will arrive shortly from England.

Maine, Lewiston. Work will be started at once on the erection of a new fast black dye house for the Lewiston Bleachery & Dye Works. The building will be located south of the present plant and will be of brick construction, 2 stories high, 200 by 60 ft. A large addition has just been completed.

Massachusetts, Assonet. Daley & Laycock Bleach & Dye Works have purchased the David Terrey waste mill which they have operated under a lease for the past year and extensive repairs will be made. The concern is adding a new store room, 25 by 80 ft. and putting in new bleaching machinery.

*Massachusetts, Lawrence. E. A. Peabody & Son have awarded contract to build the new addition to the Farwell Bleachery. Material for the new building is beginning to arrive.

Massachusetts, Ludlow. A 2,500 kw. generator and steam turbine engine have been ordered by the Ludlow Mfg. Associates and will be installed as an auxiliary plant in case of breakdown or low water. A new 300 kw. generator has been installed to furnish light and power for No. 5 Mill.

*Michigan, Port Huron. The recent fire in the plant of the Summers Fibre Co. was confined to the yarn and dyeing departments and the loss is between $5,000 and $10,000. They state that machinery loss was small and that the dyeing machinery was untouched. Repairs will be made at once.

*Minnesota, Winthrop. The Winthrop Cordage Co., incorporated early in September, with capital stock of $50,000, will establish a flax twine plant of 120 spindles and give employment to 15 or 20 hands. Work will be started on a building Oct. 1 and they expect to begin the production of goods early in November. W. F. Hines and Alvin T. Johnson are the buyers and would like an estimate on a complete two-ton flax fiber twine plant, including bleaching equipment and all supplies. Mr. Johnson is president of the company; J. A. Larson, treasurer; Chas. W. Quandt, agent, and Sanfred Nylander, superintendent.

*New Jersey, Paterson. The new linen mill to be built at South Second St., Lakeview, will be in no way connected with the Allentown Spinning Co. of Allentown, Pa., and the product will not be sold by the Linen Thread Co. J. Edward Barbour, who heads the project, is at present in Ireland.

Pennsylvania, Manheim. The United States Asbestos Co., manufacturers of yarns, tapes, cloths, cords, etc., have recently purchased 30 looms which they will install in their plant as an increase to their present equipment. They have a capital of $60,000; George H. Danner, president; Chester L. Hill, vice-president; and G. M. Hess, treasurer.

Pennsylvania, North Wales. The Asbestos Fibre Spinning Co. has started work on a large addition which when completed will connect the main building with the brick mill purchased last November. The new structure will be 106 ft. long and 50 ft. wide, 2 stories high. The lower floor will be used at a shipping and packing room and upper floor will be used for manufacturing purposes. An addition to the power plant has been made and a 150 h. p. engine is being installed. Later a new office building is to be erected. The Asbestos Fibre Spinning Co. makes asbestos textile and steam packings of all descriptions which are sold direct at 1113 Chestnut St., Philadelphia. C. Huber is president and Geo. Schafenacker, treasurer.

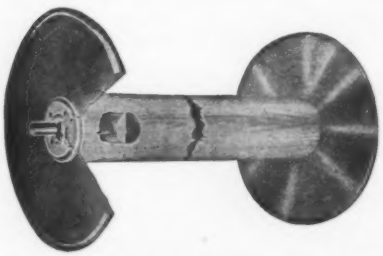
Pennsylvania, Philadelphia. The Estate of C. J. Moritz, now located in their new building at the S. E. cor. of 5th and Callowhill Sts., where they are manufacturing shade and dress trimmings, laces, embroideries, etc., on 10 Swiss and 30 Bonnaz machines, are installing quite a number of new machines just received from abroad.

Rhode Island, Pawtucket. Construction work on the addition to the plant of the American Textile Co. will probably be completed in about a month. The addition will be 243 by 108 ft. when finished. One end will be built of wood, with the expectation of a further increase within the next two years.

*Rhode Island, Pawtucket. Work has been started on the reported enlargement to the Seekonk Lace Co.'s plant, which is being built at a cost of $25,000. The addition will have capacity of 18 lace machines for making fancy laces, which will be imported from Nottingham, England. The capital stock of the Seekonk Lace Co. is $150,000. H. J. Lynd is president; Louis Lescault, treasurer, and W. D. Sowter, secretary, superintendent and buyer. The plant is equipped with dye house and operated by electric power.

*Rhode Island, Phenix. The Phenix Braid Mill, previously reported incorporated with capital stock of $15,000, has begun manufacturing, making shoe laces and braids. The new corporation purchased the plant of Harry W. Marcy, which was located at the foot of Hawthorn St., Providence, and consisted of 150 braiders. Clarence O. Carpenter is president and Herbert W. Barker is treasurer and buyer. The product will be sold direct. The plant is operated by water and gasoline.

*Wisconsin, Janesville. The work of rebuilding the burned plant of the Janesville Batting Mills has been completed. For weeks past they have been making repairs on the machinery that was damaged in the fire which destroyed the old building and this equipment has been set up in the repaired building. Reports to the effect that the name had been changed to the Burns Batting Mills Co. are incorrect, as business will be done under the old style of the Janesville Batting Mills.



## S. & D. Jack Spool

Pat. Aug. 6th, 1906

**SWEET & DOYLE, Mill Furnishers**

COHOES, N. Y.

The only spool made that the barrel itself acts as a support for the head. Note the recess in the head and the shoulder on the barrel. Our Claim:— A perfectly SMOOTH HEAD.—NO SLIVERS.— A STIFF SPOOL.—The STRONGEST.—The LONGEST LIVED.—As CHEAP as the BEST.— Practically INDESTRUCTABLE.

Thread and Silk **SPOOLS** of any description

made from one piece, up to 6" long and 5" dia.

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted.

**E. L. TEBBETS SPOOL COMPANY,** Locke's Mills, Me.

## ASHWORTH BROS.,

—MANUFACTURERS OF—

## Card Clothing of Every Description

FALL RIVER, MASS.

**DIXON PATENT STIRRUP ADJUSTING SADDLE**

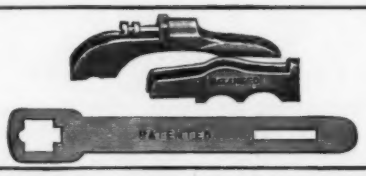
1,200,000 pairs now in use

**Best Saddle for Top Rolls of Spinning Frames**

*Send for Samples*

DIXON LUBRICATING SADDLE CO., Bristol, R. I.

Manufacturers of all kinds of Saddles, Stirrups and Levers



**SAVE**
**Their Cost**
**In Freight.**

**THE CHAFFEE PATENT CLOTH BOARD,**

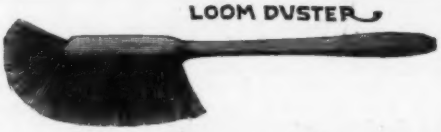
Made of paper and wood,
Needs no covers,
Will not split or warp;
Not liable to break.

BOX SHOOKS and CLOTH BOARDS.

MFG. BY CHAFFEE BROTHERS COMPANY, OXFORD, MASS.

**Clean**
**LIGHT**
**Strong**

*An Essential to the Weave Room*




WE ARE HEADQUARTERS

S. A. FELTON & SON CO. MANCHESTER, N.H. The Loom Duster

## WM. H. KNOWLES & CO.

Union and Front Sts., New Bedford, Mass.

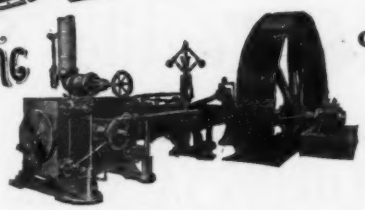
## LOOM REEDS

OF ALL DESCRIPTIONS

SOLDERED REEDS FOR SILK WEAVING a specialty

LEICE REEDS SLASHER COMBS

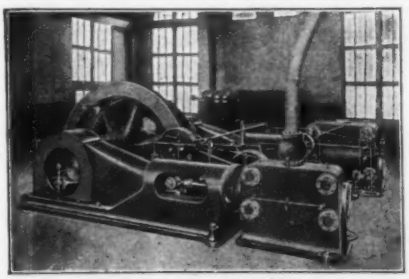
THE IMPROVED FISHKILL CORLISS ENGINE
BUILT BY THE FISHKILL LANDING MACHINE CO.
FISHKILL ON HUDSON N.Y.



For all power purposes
where high economy and
close regulation is required.

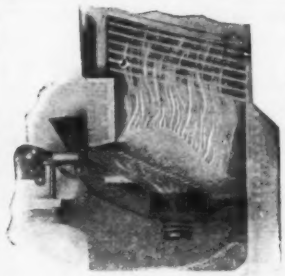
Cylinders & Valve Chests rebored in place.

General engine repairs.

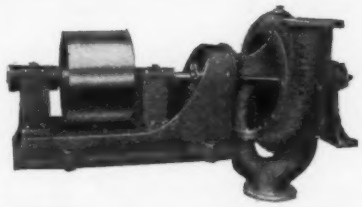


Rice & Sargent Corliss Engines
Heavy Duty Type
NOTED FOR
RELIABLE SERVICE,
LOW STEAM CONSUMPTION,
LOW FRICTION LOSSES and
SPEEDS HIGHER THAN OTHER CORLISS TYPES.
Designed and built by
PROVIDENCE ENGINEERING WORKS
Main Office & Works PROVIDENCE, R. I.

FOSTER SUPERHEATERS
*Installed in any type of boiler without change in setting. Uniform superheat guaranteed.*
Power Specialty Company,
BOSTON: 50 Congress Street NEW YORK: 111 Broadway.



19.8 per cent More Steam per Pound of Coal
This is what four boilers equipped with
TAYLOR STOKERS
evaporated with the same coal, and operated under same conditions as four other boilers identically the same, except hand firing.
AMERICAN SHIP WINDLASS CO.
General Sales Office and Works, - - - - Providence, R. I.
LENHER ENGINEERING CO., Sole Agents N. Y., N. J., Pa., N. Y. City 15-47



Centrifugal Pumps
We build them in accordance with the most advanced practice for all requirements. Consult with us on any pumping proposition.
Lawrence Pump and Engine Company
P. O. Box 70. Lawrence, Mass.
New York Office, 90 West St., Edmund S. Gibson, Manager.
*Catalogue T. R. now ready.*

# Wyandotte Textile Soda

IN

## SULPHUR DYE COLORING YARNS and HOSIERY

It has long been a matter of common experience that sulphur dyeing cotton yarns and hosiery required much painstaking precaution.

Should this attention be relaxed the goods become tender and in other ways lose much of their value. Both the cause and the remedy are now a matter so thoroughly understood that no one need experience any further trouble.

This weakening or tendering action is due to the presence of Sodium Sulphide remaining in the goods which on oxidation liberates sulphuric acid and in due time the sulphuric acid exerts a carbonizing effect on the cotton material.

The use of WYANDOTTE TEXTILE SODA in the second wash neutralizes this action of the Sodium Sulphide and preserves to the goods all their original strength; prevents the harsh dead effect and imparts a deeper and richer bloom to the dye. Simple as this matter may seem, you at once realize that it is far reaching in its effects.

This Trade Mark Card

in every package.

This is but one use for WYANDOTTE TEXTILE SODA. We will gladly tell you of many others. Order from your supply house or ask us for further information. Also ask us about the use of WYANDOTTE CONCENTRATED ASH for kier boiling.

**THE J. B. FORD COMPANY, Sole Mfrs.**
**WYANDOTTE, MICH., U. S. A.**

THIS SODA HAS BEEN AWARDED THE HIGHEST PRIZE WHEREVER EXHIBITED.

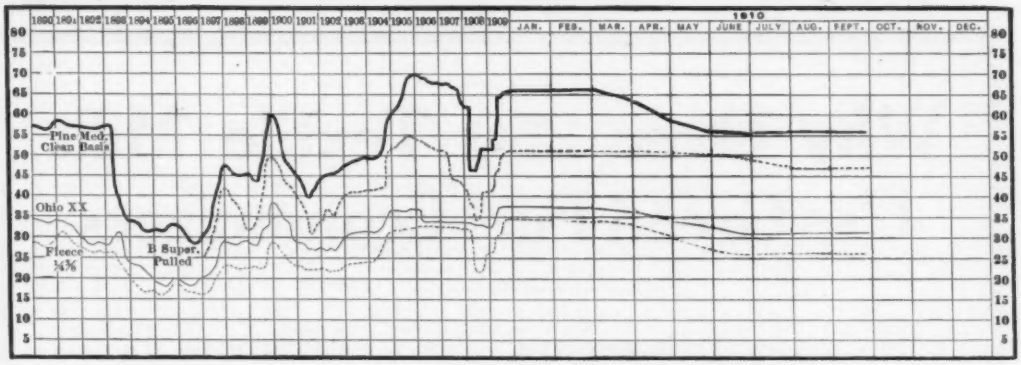



CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

### The Wool Market.

A situation unparalleled in the history of the trade prevails in the American wool market at the present time. Prices have declined until some grades are on a free wool basis and sales for export have actually been made. Despite the low prices domestic manufacturers are buying only for immediate requirements, which call for very small quantities owing to the depression in the goods market. Clothiers and dealers in dress goods are pursuing a like conservative policy. The general disposition is to go slow and await developments. While this is the situation in the United States trade is booming abroad. Foreign manufacturers of both woolen and worsted goods are well supplied with orders and driving their mills to their utmost capacity, while the foreign wool markets are unusually firm. The American markets are suffering from the effects of a local disturbance. Undoubtedly the political situation and the prospect of another revision of the tariff are the chief factors in the disturbance here. As far as the price of wool is concerned, the coming revision has been more than discounted, for there is no movement in favor of free wool. All that the trade can do is to await developments.

### MILL NEWS.

Pennsylvania, Philadelphia. Owing to the demand for their goods, it has been necessary for the Universal Hosiery Co., 2nd and Norris sts., to place an order for additional full fashion machinery for making silk lisle and silk goods of fine quality. This concern was incorporated with capital stock of $50,000 the first of the year and later increased to $100,000. Wm. Schoenherr is secretary and general manager.

Wisconsin, Milwaukee. The capital stock of the Badger Knitting Mills Co. has been increased from $4,000 to $6,000. This concern was organized last April to manufacture knit goods, but up to the present time it is understood nothing has been done toward equipping a plant. August Badger, Frank T. Schultz and Nathan Glicksman, the last named of the law firm of Glicksman, Gold & Corrigan, are the incorporators of the company.

**A. W. BUHLMANN**

*Textile Engineer*

487 Broadway - NEW YORK

Silk Exchange Building

IMPORTER OF

**Textile Machinery**

**The Muller 36 Roller Napping Machine has been awarded**

**"GRAND PRIZE"**

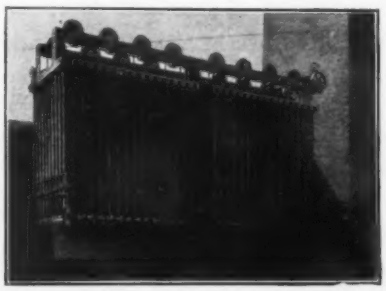
**at the World's Exposition in Brussels, Belgium**

**The best Cotton Blankets made in Europe and America are napped on the Muller machine**

# Why Over 250 Textile Mills Use Green Fuel Economizers

**1. Green Economizers** recover heat, usually thrown away, and **save 15 to 20 per cent of the fuel bill.**

**2.** They increase the capacity of the boiler plant by 10 or 15% without burning any more fuel or necessitating further attendance.



**Green Fuel Economizers at the Potomska Mills, New Bedford, Mass.**

**3.** They **reduce** the cost of boiler cleaning, as they prevent scale-forming matter from entering the boilers.

**4.** They **supply large amounts of hot water** for dye-tubs, kiers and washing machines without consuming fuel or taking steam from the boilers.

**5. Repair bills amount to practically nothing** as the metal-to-metal joints between pipes and headers, and our special connection to the manifold outside of the economizer chamber, allowing flexibility for uneven settling, have proved to be the best construction.

Write for booklet "106 TW" giving details of various tests in textile mills, or better still, send us such data as the amount of coal burned for 24 hours, present temperature of water entering boilers and the temperature of gases entering the stack and we will figure out in dollars and cents how much a Green Economizer will pay you in the course of a year.

## The Green Fuel Economizer Co.

**MATTEAWAN, N. Y.**

**New York City, Boston, Chicago, Atlanta, San Francisco, Los Angeles, Seattle, Salt Lake City, Montreal**

**Engineers; Builders of Green's Fuel Economizers, Fans, Blowers and Exhausters, Steam Air Heater Coils, Waste Heat Air Heaters, Mechanical Draft, Heating and Ventilating and Drying Apparatus, Draft Dampers and Engines.**

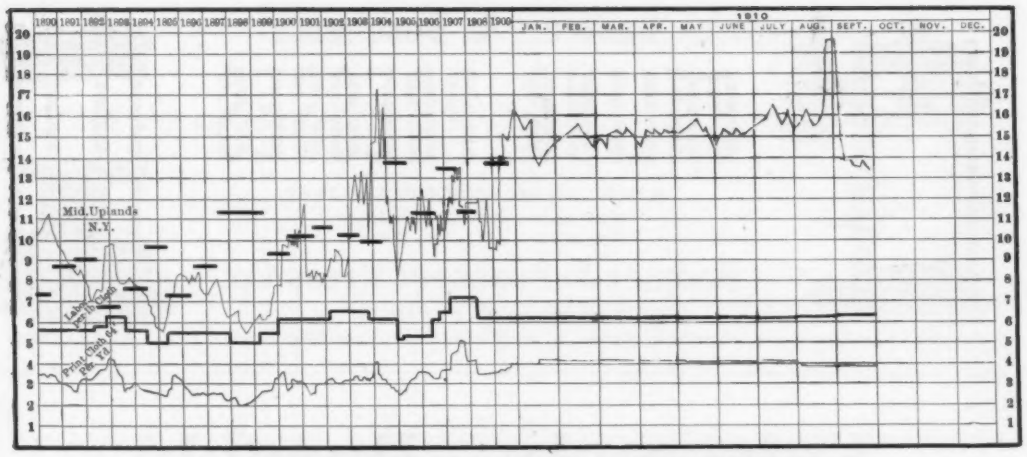



CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

*The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.*

## The Cotton Market.

The changes in prices since our last report have been due chiefly to speculative influences, there having been no developments to affect the course of supply and demand. The new crop is now out of reach of influences that can change its size or character materially. The movement into sight is moderate in volume, being considerably below last year. It is estimated by the "Chronicle" from Sept. 1 to Sept. 23 for a series of years as follows:

| Year. | Bales. |
|---|---|
| 1910, Sept. 23 | 697,128 |
| 1909, Sept. 24 | 1,005,956 |
| 1908, Sept. 26 | 934,919 |
| 1907, Sept. 27 | 768,892 |
| 1906, Sept. 28 | 956,705 |
| 1905, Sept. 29 | 1,246,910 |

The same authority estimates the world's visible supply on Sept. 23 at 1,581,606 bales; as compared with 2,190,020 bales on corresponding date in 1909; 1,097,589 bales in 1908; and 2,318,254 bales in 1907.

Curtailment of production still continues on a large scale both at home and abroad. The failure of the goods market to respond to the development in the raw material trade is creating a very difficult situation for manufacturers, both at home and abroad.

## MILL NEWS.

W. R. Howe, superintendent of the Johnstown Knitting Mills Co., Johnstown, N. Y., has resigned to accept a similar position with the W. E. Tillotson Mfg. Co., Pittsfield, Mass. Chas. W. Hill is his successor.

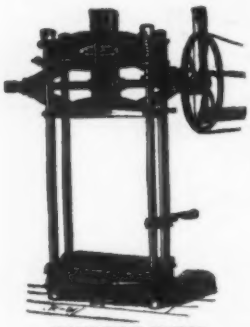
W. C. Curtis has accepted the position as overseer of dyeing and finishing at the Old Fort Knitting Mill, Fort Wayne, Ind. He comes from the Wisdom Hosiery Co., Paducah, Ky.

Frank Donahue has accepted the position as overseer of dyeing at the Richelieu Departmnt of the Frisbie & Stanfield Knitting Co., Utica, N. Y. He comes from Richfield Springs, N. Y.

A. A. Alexander has been appointed superintendent of the Cooleemee Hosiery Mill, Cooleemee, N. C. He comes from Kernersville, N. C.

PAPER FOR THE TEXTILE TRADE
*Get Samples and Prices*
ALBERT A. LANE, 70 Warren St., New York

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT

Boomer & Boschert

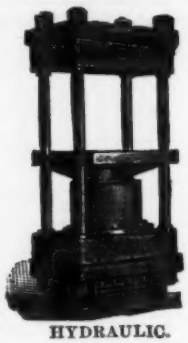
# BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size Any Power

**Boomer & Boschert Press Co.**

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C



HYDRAULIC.

# Extremely Durable Loom Harnesses

Our many years' experience in making cabled twine loom harnesses shows beyond the shadow of a doubt that our cabled twine harnesses weave as well and wear longer than those made of ordinary twine, except on fine work. Our experience with this twine enables us to turn out cabled twine harnesses which are as near perfect as it is possible for harnesses to be made.

TRADE MARK

**GARLAND MFG. CO.**
**SACO, MAINE**
*Formerly Loom Picker Co., Biddeford, Maine*

TELEPHONE SPRING 2641

# A. SUTER
TEXTILE ENGINEER

487 Broadway, New York
(Silk Exchange Building)

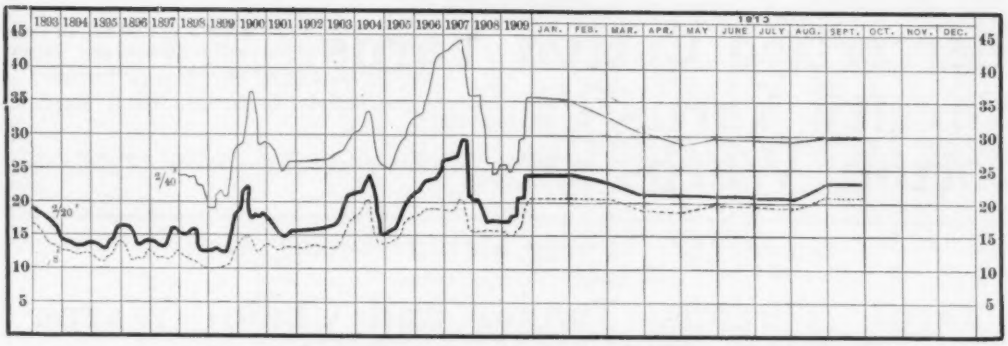
Importer of Yarn and Cloth Testing Instruments

Inquiries Solicited.

Sole Representative of
**Messrs. BRIEM & KOCH,**
CREFELD
Finishing Machinery of all kinds

**Filature Lyonnaise de Schappes**
**J. VILLARD & CO., Lyons**
Schappes in the gray, singles and doubles, on cops, cheeses and skeins.

# Yarn Department.




GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

## Cotton Yarn Market.

Considerable improvement is reported as having taken place in the cotton yarn market during September over conditions which have existed for the past few months back. Prices have been somewhat lower, as the raw material has declined and manufacturers who have booked fall business have been inclined to cover their sales when they could place business at prices which seemed reasonable.

The general curtailment throughout the country in the textile lines has placed the market in a better condition and unless spinners show a disposition to increase the supply beyond the demand or, on the other hand, develop an exaggerated idea of the possibility of obtaining higher prices and thus prohibit consumption, there should be a return to normal conditions throughout the trade.

Philadelphia manufacturers, in the majority of lines, are receiving more inquiry for fabrics, and with few exceptions the inquiries are for prompt deliveries. Apparently in some instances, buyers are said to have been too conservative for their own advantage. One instance is illustrated in the case of one of the larger dress goods mills, which had closed its fall lines, shipped its mill ends to its selling agents and started to make spring samples, when there were received additional orders for fall goods and in a few days some hundred pieces were booked, each order with an urgent request that the goods be rushed with all possible speed.

Western merchants seem more inclined to place business than those in the East. The cotton crop apparently will be sufficient in size to sell at not over 13 1/2 cents unless frosts appear before they are due, and there seems to be every indication that there is a good basis for the optimistic feeling which is developing.

Among the knitters business does not appear to be coming in as it should. Many of the hosiery manufacturers have had their plants shut down and are just starting up after a dull summer. The underwear trade is in fairly good condition and more orders for yarns are being placed from this branch of the industry. One Northern spinner making yarns for this trade reports that his plant is entirely sold up until January 1st with yarn sold on a basis of 14 1/2 cent cotton.

Linen yarns are about in the same condition as to price, the market is very stiff and a rise in price is anticipated at almost any time.

Eastern Cops.

| | |
|---|---|
| 6s | 20½ |
| 8s | 21¾ |
| 10s | 22¼ |
| 14s | 23¼ |
| 16s | 23¾ |
| 18s | 24¼ |
| 20s | 24¾ |
| 22s | 25¼ |
| 24s | 25¾ |
| 26s | 26¼ |
| 30s | 27 |
| 34s | 28 |
| 36s | 29 |
| 40s | 30 |

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

| | |
|---|---|
| 12s | 23 |
| 14s | 23½ |
| 18s | 24 |
| 20s | 25 |
| 24s | 26 |

# THE J. R. MONTGOMERY CO.,

**Windsor Locks, Conn.**

MANUFACTURERS OF

**Mercerized Cotton Yarns** Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

**Novelty Yarns** Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

**Cotton Warps** on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

---

Greene & Daniels Manufacturing Co.,

Combed, Carded and Gassed

**Yarns, Threads, Twines and Chain Warps**

Dye Sulphur Blacks Direct in Cops, Cones or Tubes.

Colored and Bleached Yarns Furnished in any manner desired by the trade. Pawtucket, R. I.

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# MONUMENT MILLS,

Manufacturers of

White, Colored, Fancy and Double Twist

**COTTON WARPS**

HOUSATONIC, MASS. 4s to 60s.

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**Beck's Hosiery Board Clamp**

SAVES HOSIERY BOARDS

Also helps increase production. Easily hinged to bench. Write for details.

ALBERT C. BECK

605 W. Somerset St., Phila., Pa.

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**C. MOORE & CO.,**

Manufacturers of

**TWINES, THREADS AND YARNS**

Jacquard Harness Twines of all kinds on hand and made to order.

S. W. Cor. Fifth and Market Sts., Phila.

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**ELIAS T. VANDEGRIFT**

Successor to Ward & Vandegrift

In the Manufacturing of **SPINDLES,**

For Cotton, Woolen, Worsted, Silk and Flax Machinery. Manufacturers and Repairers. Also Flyers, Steel Caps, Bolsters, Steps, Tubes, Etc.

ELMER, SALEM CO., .. N. J.

---

**GRANT YARN CO.**

FITCHBURG, MASS.

Combed and Carded Cotton. **YARNS** 40's and above and **WARPS**

---

ESTABLISHED 1885

**John Eppler's Machine Works,** 629 Filbert St., Phila., Penna.

Manufacturers of

**Latest Improved Cop Machinery**

of all kinds and

Upright Knitting Machinery for Millinery

Dress and Upholstery Trimmings

---

**JOHN F. STREET & CO.**

**Cotton Yarns**

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

---

# The Merwin Paper Company

**Hartford, Conn.**

**Press Papers and Fender Boards**

*Correspondence Solicited*

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

| | |
|---|---|
| 26s | 27 |
| 30s | 28 |
| 36s | 31 |
| 40s | 34 |
| 45s | 38 |
| 50s | 42 |
| 55s | 47 |
| 60s | 51 |

Eastern Two-Ply Warps, Carded Peeler.

| | |
|---|---|
| 2/30s | 28 |
| 2/36s | 31 |
| 2/40s | 34 |
| 2/45s | 38 |
| 2/50s | 42 |
| 2/60s | 51 |

Card and Combed Peeler. Reverse Twist 2 and 3 Ply.

| Size. | Carded. | Combed. |
|---|---|---|
| 20s | $0.33 | .... |
| 24s | .34 | $0.50 |
| 30s | .40 | .53 |
| 36s | .45 | .56 |
| 40s | .47 | .58 |
| 45s | .50 | .61 |
| 50s | .. | .66 |
| 60s | .. | .72 |

## The Philadelphia Market.

| | |
|---|---|
| 7s and coarser | 21½ |
| 8s and 9s | 21½ |
| 10s | 21½ |
| 12s | 22 |
| 14s | 22½ |
| 16s | 23 |
| 18s | 23½ |
| 20s | 24 |
| 22s | 24½ |
| 24s | 25 |
| 26s | 25½ |
| 30s | 26½ |
| 40s | 32 |
| 50s | 38 |

Southern high grade mule yarn:—

Cones.

| | |
|---|---|
| 10s | 23 |
| 12s | 23½ |
| 14s | 24 |
| 16s | 24½ |
| 18s | 25 |
| 20s and 22s | 25½-26 |
| 24s | 26½ |

Southern frame yarn, lower grades:—

| | |
|---|---|
| 6s and 8s | 20½ |
| 10s | 21 |

Eastern cones (high grade quality):—

| | |
|---|---|
| 10s | 23½ |
| 12s | 24 |
| 14s | 24½ |
| 16s | 25¼ |
| 18s | 25¾ |
| 20s and 22s | 26¼-26¾ |

JAMES E. MITCHELL CO., COMMISSION MERCHANTS

Cotton Yarns

122-124 Chestnut Street, PHILADELPHIA, PA.
Brown Building, 185 Summer Street, BOSTON, MASS.
28 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,

Cotton Yarns.

345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
717 Medinah Building, CHICAGO.

William Whitman & Co.,

Commission Merchants

COTTON AND WORSTED YARNS

BOSTON. NEW YORK. PHILA. ATLANTA.
CHICAGO. BALTIMORE. ST. LOUIS. CHARLOTTE.

A. D. Salkeld & Bro.

COMMISSION MERCHANTS

DEP'T FRED'K VIETOR & ACHELIS

Cotton and Worsted Yarns

366 Broadway cor. Franklin St., NEW YORK

Fred Sternberg & Co.

530 BROADWAY, NEW YORK

MERCERIZED TURKEY RED GASSED } COTTON YARNS

LUDWIG LITTAUER

YARNS

Tram, THROWN SILK, Organzine.
ARTIFICIAL OR WOOD SILK.

Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.

Best Quality Harness Twine

109 GREENE STREET, NEW YORK
Silk Throwing Mills BOONVILLE and YONKERS, N. Y.

YARNS

T. H. S. CONE, Direct Selling Agent

COTTON YARNS

77 Worth Street, New York, N. Y.

Representing

Norwood Mfg. Co., Norwood, N. C.
Linn Mills Co., Landis, N. C.

LINES WANTED!!!

By a hustling firm to sell on commission from Mills Direct.

Cotton Piece Goods, Cotton Towels, Quilts, Hosiery and kindred lines.

*Best Facilities. Fine Show-room.*

H. P. Hartz, 414 Broadway, New York.

S. T. Crocker, Pres. W. F. Stiles, Treas.

# ORSWELL MILLS

**Fitchburg, Mass.**

Capacity, 45,000 Spindles.

## HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

## JENCKES SPINNING COMPANY

PAWTUCKET, RHODE ISLAND

## COTTON YARNS

CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS.
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

"A Southern Selling Agency for Southern Spinners."

## Cotton Manufacturers' Sales Co.

Statesville, N. C.

COTTON YARNS

SKEINS, WARPS, CONES AND TUBES

Philadelphia Office: 429 Drexel Building

## Century Cotton Mills

Manufacturers of

## Hosiery Yarns

Nos. 10s to 30s Sell Direct

South Boston - - - Virginia

Authorized Capital $100,000

W. A. Dickel, Pres. and Treas.
Samuel Reid, Vice-Pres. and Sec'y.
I. B. Scovill Gen'l Mgr. and Supt.

## INDUSTRIAL MILLS CO.

Jasper and Huntingdon Sts., Phila., Pa.

Manufacturers of

NARROW FABRICS

Special Attention Paid to Plain and Fancy Spool Tapes and Stay Bindings.

## F. W. MAURER & SONS CO.

MANUFACTURERS OF

## Fringes, Tapes, Bindings, & Narrow Fabrics

Office and Factory: WAYNE AVE. and BRISTOL STS.
PHILADELPHIA

## LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin St., NEW YORK

Flax, Hemp and Jute Line and Tow Yarns, For Weaving Purposes.

Linen Jacquard Harness Twines, Fine Cotton Harness and Heddle Twines, For Cotton, Silk, Woolen and Carpet Manufacturers.

Correspondence solicited. Samples promptly furnished.

## Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

## EDWARD S. HYDE,

226 CHESTNUT STREET,

Philadelphia, Pa.

## William B. Charles,

Amsterdam, N. Y.

Cotton Yarns, Cotton Cloth, Silesia, Sateens,

For the Underwear Trade.

## Niagara Thread Co.

120-122-124 So. American St.
PHILADELPHIA

Manufacturers of

Sewing Threads and Mercerized Cotton

We manufacture a special thread for the Underwear trade.

Skein yarn (mostly Southern):—

| | |
|---|---|
| 4s and 8s soft | 21 |
| 10s and 12s | 21½-22 |
| 14s and 20s | 22-23 |
| 22s | 23 |
| 10/2 | 22 |
| 16/2 | 22 |
| 20/2 | 23 |
| 30/2 | 25 |
| 40/2 | 30 |
| 8/2 | 22 |
| 7/6 | 22 |

### Linen Yarn Market.

Linen Knitting Yarns.
("A" Quality.)

| | |
|---|---|
| 35s Lea on cones | 80-85 |
| 50s Lea on cones | 90-95 |
| 60s Lea on cones | 95-1.00 |
| 80s Lea on cones | 1.00-1.10 |
| 90s Lea on cones | 1.15-1.20 |
| 100s Lea on cones | 1.25-1.30 |
| 110s Lea on cones | 1.45 |
| 120s Lea on cones | 1.60 |

Pennsylvania, Wernersville. Hain Bros. are installing new knitting machines in their Wernersville Hosiery Mills for the purpose of increasing their production. The plant now consists of 20 knitters and 5 ribbers which they operate on seamless cotton half hose.

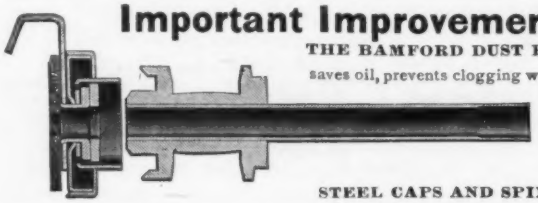
## MILL NEWS.

*Pennsylvania, Blandon. Additional knitting machines have been installed by the Willow Creek Knitting Mills. Manufacturing has been resumed.

Pennsylvania, Philadelphia. The Regal Hosiery Co., who started up several months ago with 21 knitters, 5 ribbers and 3 loopers, which they operated on men's fine gauge seamless silk hosiery, have installed 15 new knitters, on which they will make a line of ladies' fine silk hosiery. They dye and finish and sell direct.

Pennsylvania, Philadelphia. The Hadfield Hosiery Mills, Kensington Ave. & Huntingdon Sts., operating 40 knitters, 40 ribbers and 6 loopers on seamless half hose, women's ribbed hosiery and children's and infants' cotton and mercerized hosiery, have placed an order for 24 new Acme knitters, for the purpose of making a line of ladies' fine gauge hosiery as an addition to their regular line of goods.

Tennessee, Maryville. A charter has been granted the Maryville Hosiery Mill with capital stock of $50,000. R. H. Hanna, Robt. D. Oliver, S. S. Grover, Norman D. Morrell and Joseph Burger are the incorporators. The new incorporation has taken over the plant of the Watauga Hosiery Mill of Johnson City, and will operate the machinery in the Maryville Hosiery Mills which have been rebuilt since the fire last March. R. D. Oliver will be elected president; R. H. Hanna, treasurer and C. Sherman Greene, supt.

**Important Improvement in Worsted Spinning.**

**THE BAMFORD DUST PROOF and SELF-LUBRICATING SPINDLE TUBE**

saves oil, prevents clogging with dust and lint, thereby insuring longer life to the tubes, saves labor, maintains uniform speed, **and most important of all,** makes PERFECT YARN. Refer to largest worsted mills.

**BAMFORD & SMITH, Providence, R. I.**

ALSO MFRS. OF

**STEEL CAPS AND SPINDLES.** **Caps, Flyers, Tubes, etc., Repaired.**

**TEXTILE MANUFACTURERS ! ! !** ASK ABOUT OUR NEW

**HYDRAULIC TESTING MACHINE**

For testing the strength of Cloth, Paper, or any material you wish to know the strength and elasticity of.

We also manufacture **WARPERS and BEAMERS** for Ribbons, Tapes and All Narrow Goods

**C. H. KNAPP, Wait and Rye Streets, PATERSON, N. J.**

**Steel and Brass** **MAILS** **J. WALDER, - - Paterson, N. J.**

**Reeds, Harnesses, Lingoes, Shuttles and Quills**

Liberal Discount to Dealers

**F. C. BARTON**

65 Worth Street, New York

MANUFACTURER OF

**"LILY"** BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

**THE BIAS NARROW FABRIC CO.**

F. C. BARTON, President

65 Worth Street, New York

Bias and Straight Cut Fabrics and Ribbons.

Embossing and Cutting Customers Own Goods a Specialty.

## *Pocasset Worsted Company,*

*Worsted Yarns.*

BOSTON
100 BOYLSTON STREET
TELEPHONE 19 OXFORD

NEW YORK
45 EAST 17TH STREET
UNION SQUARE

H. HODGSON, Pres. & Treas. FRED HODGSON, Gen. Mgr.

## QUEENSBURY MILLS

**Mohair, Lustre and Worsted Yarns**

—Single and Two Ply—

Grey—Colors on Mixtures Worcester, Mass.

## Woolen and Merino YARNS

**Eaton Rapids Woolen Mills,**

EATON RAPIDS, MICH.

## William B. Charles,

**Amsterdam, N. Y., U. S. A.**

## Cotton and Wool Wastes

**COTTON YARNS**

Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

Established 1844.

## BENJ. BUCKLEY'S SON,

(WM. J. BUCKLEY) *Gun Mill, Paterson, N. J.*

Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.

Roving Spindles and Flyers a Specialty. Light Forgings.

REPAIRING OF ALL KINDS.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.

Established 1860—Incorporated 1893.

## THE S. BLAISDELL, JR., CO.,

## COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

CHICOPEE, MASS.

Cotton Waste Purchased on Yearly Contract from Mills.

## THE FARISH-STAFFORD CO.,

**Cotton Yarns and Piece Goods**

ALL NUMBERS YARN CARDED AND COMBED

**Gassed and Mercerized Yarns**

57-59 Worth St., New York.

31 Bedford St., Boston 242 Chestnut St. Phila. 332 Medinah Temple, Chicago

## Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

LINDSAY, HYDE & CO., ©

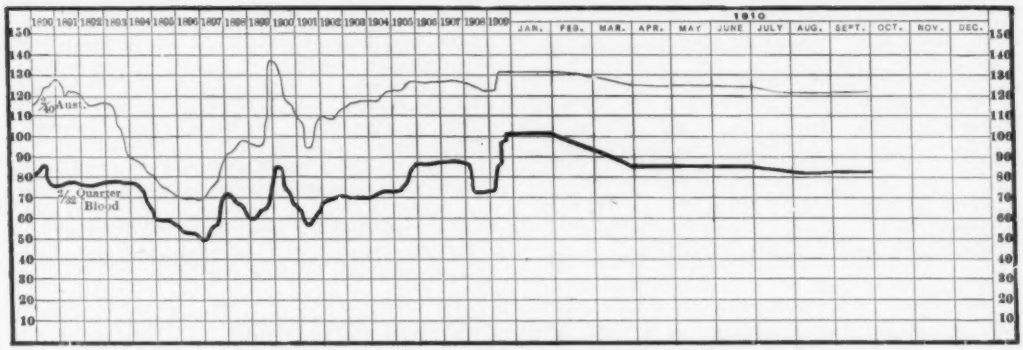
2124 to 2130 East York St., PHILADELPHIA, PA.

## TEXTILE MACHINE WORKS

THUN & JANSSEN, READING, PA.

Manfrs of *BRAIDING MACHINES*

for making Dress Trimming Braids, Cotton Tapes, Underwear Braids, Shoe Laces, Spindle Banding, etc. Winders, Doublers, Measuring Machines, Reelers, Singeing and Finishing Machinery, Special Machinery.




GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

### The Woolen and Worsted Yarn Market.

Trade still continues dull, business being very quiet. Some spinners, however, who are working on voile yarns are reported as having large orders on hand, with prices for this class of yarns running from $1.37 to $1.85 a pound. The weaving trade is still in a state of quietude, reporting very little or no business in hand, and are still waiting for orders from samples which have been placed on the market. There has been some calls for 2/40s and 1/20s on 1/2 bloods and some oxford mixes from the weaving trade.

The dress goods manufacturer seems to be doing a little more than the men's wear trade, but large orders are a novelty even with prices as low as they have been up to the present time.

There is a very active demand for knitting yarns in counts from 16s to 32s, two ply mostly, with some three and four plys. A large part of this trade is using wool yarns on account of the price.

The knitting trade is now approaching the end of the season and will begin to place contracts for yarns during the months of October and November for next season's supply. The outlook for this branch of the business is said to be good, for the reason that many people will replace their heavy overcoats with sweaters, which can be bought at a much lower price and yet serve the same purpose. This to some extent, it is said, will affect the weaving trade on heavy weight goods.

Prices for knitting yarns are expected to remain about the same in price, no material advance being anticipated.

### Woolen and Merino Yarns.

Spinners of woolen and merino yarns, while busy, report only a fair business for their product. Prices on all grades of yarns, both in mixtures and all wool stock from 2/20 cut to 2/25 cut, with the exception of 2/20 bleached, 90/10 and 2/20 bleached all wool, which remain the same as to price, have been reduced about 2 1/2 cents per pound. This reduction, it is said, has been made

**Inclined Elevators**

**and Moving Stairways**

**SAVE TIME**

We are Pioneer manufacturers of Inclined Elevators and Moving Stairways. A very economical and efficient machine for handling the employees of Textile Mills. We also manufacture Inclined Elevators for carrying up trucks, cases, bales of cotton and wool, and other products of mills. Write us for information and prices.

**The Reno Inclined Elevator Company**

555 West 33rd St., NEW YORK CITY

to meet the price of worsted yarn which at this time is very low. The knitters, especially the sweater trade, are very busy, but are buying on a hand to mouth basis, due to the fact that the spinner will not contract for future delivery for the reason that he anticipates that prices will go higher, and he does not want to be loaded up with contracts for low priced yarns. Knitters are in most cases anxious to contract at present prices, but the majority of them are being turned down. What yarns that are being bought are for 2/20 cut in oxfords, double bleached and colors. Spinners of weaving yarns report that orders for them are few and far between and as a consequence there is little doing from this trade.

BRADFORD SPUN YARN.

| | |
|---|---|
| 2/16 Ingrain (black) | 48 |
| 2/16 Ingrain (light grey) | 52 |
| 2/16 Ingrain (white) | 53-55 |
| 2/12 to 2/16 low common | 65 |
| 2/12 to 2/20 low common | 70 |
| 2/20 to 2/24 1/4 blood | 72½ |
| 2/26 to 2/28 1/4 blood | 75 |
| 2/32 1/4 blood | 77½-80 |
| 2/20 3/8 blood | 86 |
| 2/26 3/8 blood | 88 |
| 2/30 3/8 blood | 90 |
| 2/32 3/8 blood | 92-95 |
| 2/36 3/8 blood | 95 |
| 2/40 1/2 blood | 1.00-1.05 |
| 2/40 delaine | 1.10 |
| 2/50 delaine | 1.18 |
| 2/40 Australian | 1.32-1.35 |
| 2/50 Australian | 1.37½ |
| 2/60 Australian | 1.40 |
| 2/24 luster | 79 |
| 2/28 luster | 80 |
| 2/30 and 3/32 luster | 85 |
| 2/36 luster | 90 |
| 1/24 worsted and 80s single cotton for raincloths | 1.00 |
| 1/24 worsted and 120 single cotton for raincloths | 1.15 |

FRENCH SPUN YARN.

| | |
|---|---|
| 1/20 1/4 blood | 75-80 |
| 1/20 high 1/4 | 82-87½ |
| 1/20 high 3/8 | 97½-1.00 |
| 1/20 1/2 blood | 1.05-1.10 |
| 1/20 3/8 blood | 92 |
| 1/30 1/4 blood | 77½ |
| 1/30 3/8 blood | 95 |
| 1/30 1/2 blood | 1.05 |
| 1/40 1/2 blood | 1.06 |
| 1/50 delaine | 1.20 |
| 1/40 Australian | 1.35 |
| 1/50 Australian | 1.37½ |
| 1/60 Australian | 1.41 |
| 1/70 Australian | 1.45 |

WOOLEN AND MERINO YARNS.

| Cut | Wool | Cotton | |
|---|---|---|---|
| 2/20 Light Grey Mixed | 80% | 20% | 56 |


# THE ELEMENTS of COAL BUYING

**1. Determine the coal that will with your equipment give you the most steam for a dollar.**

**2. Buy at the best price, on guaranteed specifications.**

**3. Make sure you get what you buy.**

The only strictly competitive basis on which coal can be purchased is a definite standard of quality determined by chemical analysis.

*Write for our Booklet on The Purchase of Coal.*
*It will interest you.*

## ARTHUR D. LITTLE, Inc.

**93 Broad Street** **Boston, Massachusetts**

| | | | |
|---|---|---|---|
| 2/20 Light Grey Mixed | 90% | 10% | 60 |
| 2/20 Light Grey All Wool | | | 62½-65 |
| 2/20 Colored All Wool | | | 65-70 |
| 2/20 Bleached | 80% | 20% | 67½ |
| 2/20 Bleached | 90% | 10% | 72½ |
| 2/20 Bleached All Wool | | | 77½-80 |
| 2/25 Light Grey Mixed All Wool | | | 85-87½ |
| 2/25 Bleached All Wool | | | 90-92½ |

## The Rag and Shoddy Market.

The foreign market for American rags has improved since our last report and now affords the best outlet for this stock. Domestic mills are buying very little material of any kind, and only to cover what few orders for goods may come in. Prices have remained practically unchanged. No shading of quotations would be likely to move stock as the American mills have no use for it at present. The market for wool substitutes is under the same influence as is the wool market, a depression caused largely by fear of a change of fiscal conditions. Manufacturers of goods and dealers in wool substitutes are doing their best to put the burden of carrying stock on other shoulders than their own. It is impossible for anyone to say with certainty when this policy will change. In all probability it will not be before the political situation is cleared up by the elections next November.

## SHODDIES AND EXTRACTS.

| | |
|---|---|
| White yarn, best all wool | 47-50 |
| White knit, all wool, best fine | 27-41 |
| White knit, No. 2 | 32-37½ |
| Light yarn, extra fine | 32-35 |
| New pure indigo blue | 30-32 |
| *Merino.* | |
| Fine light, all wool | 28-30 |
| Medium light, all wool | 17-20 |
| Fine black, all wool | 28-29 |
| Fine dark, all wool, best grade | 20-23 |
| Medium dark, all wool, No. 2 | 17½-18½ |
| Red knit stock, strictly all wool | 21-22 |
| Red flannel, all wool | 23-27 |
| Dark blue for hosiery, strictly all wool, No. 1 | 22-26 |
| Dark blue for hosiery, not all wool, No. 2 | 17-21½ |

## WOOLEN RAGS.

| | |
|---|---|
| Fine merchant tailors | 7-8 |
| Choice light colors | 14-16 |
| Browns | 11-14 |
| Blacks | 6 |
| Blues | 10-11½ |
| Fine dark | 9-12 |
| Medium dark | 5-8½ |
| *Worsteds.* | |
| Blue | 12-13 |
| Black | 16-18 |
| *Serges.* | |
| Black | 12 |
| Blue | 14 |
| *Flannels.* | |
| New scarlet | 20-22 |
| New blue | 14 |
| Cloakings | 4-6½ |

SOFTS AND KNIT STOCK.

| | |
|---|---|
| Soft woolens, best | 5-6 |
| Old white flannels | 12-14 |
| Old red flannels | 11-12 |
| Old blue flannels | 4½-7 |
| Old plaids | 5-10 |
| White stockings | 20-23 |
| White hood stock | 20-25 |
| Clear hoods | 9-12½ |

## MILL NEWS.

California, San Diego. The concern recently incorporated under the name of the Southern California Silk Co. will not manufacture. A sort of school and museum devoted to silk will be maintained.

Canada, Quebec, Montreal. The Dominion Textile Co., Ltd., has leased the plant of the Mount Royal Spinning Co. from the Canadian Colored Cotton Co. for a term of 10 years. The Dominion Textile Co. will guarantee the Mount Royal Spinning Co.'s proportion of the Canadian Colored Cotton Co.'s preferred stock. It will be remembered that the Mount Royal Spinning Co. was recently absorbed by the Canadian Colored Cotton Co.

Connecticut, Danielson. A new concern to be known as the Connecticut Mills Co., has been organized, it is said to weave special fabrics for upholstering automobiles, and has leased the old hosiery mill formerly used by the Pilling Hosiery Co. and later by the Uncas Knitting Co. The mill building is at present owned by C. B. Wheatley of Danielson. Very little information of this company or its plans are available and the only person known to be connected with it is Wm. B. Fitz. The mill has been leased for four years with the option of purchase and it is understood it is to be equipped at once.

Texas, Weatherford. The Lone Star Cotton Mills have been incorporated with capital stock of $50,000, by C. C. Littleton, president; W. R. Woodhouse and Geo. C. Poston, vice-presidents, and E. R. Martin, secretary and treasurer. The new corporation will acquire and operate the Weatherford Cotton Mills, a plant of 5,000 ring spindles which has been operated on hosiery and underwear yarns, and will add a knitting department.

*Wisconsin, Milwaukee. Construction work has been started on enlargements to the plant of the Holeproof Hosiery Co., including a 6-story and basement addition, 80 by 60 ft., and a dye house, 90 by 60 ft. It is expected these enlargements will be completed and in use some time in December. The Holeproof Hosiery Co. has capital stock of $500,000. Carl Fresche is president; Edward Fresche, treasurer; and L. Heilbronner, vice-president and buyer. 150 new knitting machines are to be installed.

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The following silk products have made Cheney Brothers a world-wide name: Cheney Dress and Lining Silks, Foulards, "Shower-proof" Foulards, Millinery and Knitting Silks, Satins, Velvets, Plushes, Silk and Velvet Ribbons, Wash and Underwear Ribbons, Cravats, Decorative and Upholstery Goods.

***Silks for electrical and insulation purposes.***

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COTTON
AND
SILK
MIXED
WEAVE

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A spun silk single which is brilliant, white, clean—a single with a "hand."
Cross wind on the cop. "More yardage in the shuttle."
Cops to fit your shuttles, from five to seven inches long, reducing waste of silk and time. Packed in ten-pound cartons, convenient, cleanly and saving. Not gum, but sixteen ounces silk.
"MORE YARDAGE TO THE POUND."

CHAMPLAIN SILK MILLS, Whitehall, N. Y.

OFFICES: New York, Springfield, Philadelphia, Chicago
Mills: Whitehall, N. Y., Brooklyn, N. Y.

### The Silk Market.

The New York silk market has undergone quite a material change since our last report as the current prices will show, the market having become quite firm and prices higher. Some think this is owing to a larger demand, while others say it is owing to the manufacturers being caught short of the raw material, thus causing a firmer market, and incidentally a boost in prices. There is certainly a very much better feeling in the silk industry, the only question arising among the raw silk dealers is, What will be the consumption and will the manufacturers buy at the advance in prices? Some predict that they will do so, while others are not as optimistic. At any rate transactions as yet are not large. The Japan market is fairly firm, but no great amount of business being done at the new prices. In Canton the market is firm and the transactions fairly large. Our manufacturers are willing to buy in large quantities now, but want the old prices, but of course there are few transactions on that basis. It is generally conceded, however, that a revival of the silk industry has set in and a better feeling exists all along the line. The silk crop has been a good one, and there will be plenty of silk on the market, but still it is thought in the trade that prices will be higher, rather than lower, although no one at the present time is willing to predict just what the status of the market will be in the near future. In ribbons the "printed on the weave" seemed to have the call, in various designs, while in broad silks the fancy weaves are still in vogue. In Europe the manufacturers have bought considerable raw silk at the advanced prices, and are all enjoying a fairly good business, especially in Lyons. In Milan the market remains firm, with


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Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 188-190 Market St. Boston Office, 78 Chauncy St.

many transactions recorded. At present it is still a waiting game hinging on the consumption and as to whether the manufacturers will buy at the increased prices. The following prices are current:

European.

| | |
|---|---|
| Grand Extra Classical Italian Piedmont | 4.35-4.40 |
| Extra Classical Italian | 4.10-4.15 |
| Classical Italian | 3.92½-3.95 |
| Best No. 1 Italian | 2.87½-2.90 |

Sixty days' basis.

Japan.

| | |
|---|---|
| Filature Kansai Extra Extra | 3.85-3.90 |
| Filature Kansai Best Extra | 3.80-3.85 |
| Filature Kansai Extra | 3.67½-3.70 |
| Filature Shinshu Extra | 3.75-3.80 |
| Filature Kansai Best No. 1 Extra | 3.65-3.70 |
| Filature Kansai Best No. 1 | 3.60-3.65 |
| Filature Kansai No. 1 | 3.55-3.60 |
| Filature Shinshu No. 1 | 3.57½-3.60 |
| Rereels No. 1 | 3.70-3.72½ |
| Rereels No. 1 1/2 | 3.60-3.62½ |
| Rereels No. 2 | 3.42½-3.45 |
| Canton Filature Extra Extra A 14/16 | 3.15-3.20 |
| Canton Filature Extra Extra B 14/16 | 3.00-3.10 |
| Canton Filature Extra A 14/16 | 3.00 |
| Canton Rereels Selected Nos. 1-2 | 2.55 |
| Canton Rereels Ordinary Nos. 1-2 | 2.40 |

Six months' basis.

China.

| | |
|---|---|
| China Steam Filature 1st grade | 4.10-4.15 |
| China Steam Filature 2d grade | 3.85-3.90 |
| Tussah Best Chops 8 cocoons | 1.70-1.75 |
| Tussah Blue Dragon | 3.10-3.15 |
| Tsattle Kun Kee Mars No. 1 | 2.555-2.60 |

Six months' basis.

The spun silk manufacturers still report a brisk business, and many are still behind in their orders, some of which have been obliged to withdraw temporarily some of their numbers, it being impossible to keep up with the demand. There is no change in the prices current below:

| | |
|---|---|
| 60/2 | 3.30 |
| 50/2 | 3.20 |
| 40/2 | 3.10 |
| 30/2 | 2.95 |
| 20/2 | 2.85 |
| 10/2 | 2.75 |

For second quality prices remain the same, an average of 20 cents a pound less. Terms less 6 per cent. 10 days, or 5 per cent. 30 days.

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Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

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## MILL NEWS.

Kansas, Holton. It is reported that S. E. Ream will locate a factory here for manufacturing men's, women's and children's hosiery.

Kentucky, Paducah. The knitting mill which has been owned for some time by Phillips-Lack Co., has shut down indefinitely.

Georgia, Milledgeville. About $10,000 has been subscribed toward the establishment of a knitting mill here.

Georgia, Penfield. The proposition to remove to Milledgeville, Georgia, and reorganize, which was under consideration by the Penfield Hosiery Mills, has been abandoned.

Maryland, Baltimore. The Amherst Knitting Mill, operated by John S. Tapscott & Co. at 115 So. Hancock St., is shut down and it is not known whether it will be started up again.

New Jersey, Newark. The Thos. Behan Co. has been incorporated with capital stock of $25,000 to manufacture hosiery, silks, etc. The incorporators are C. H. Smith, G. R. Searing, Jr., and W. F. Provost of Newark.

New Jersey, Paterson. A charter has been granted the Hugo Huettig Co., with capital stock of $100,000, to manufacture silk hosiery. The incorporators are Hugo Huettig, Victor Opitz and Emil G. Katterman. The new corporation succeeds to the business of Hugo Huettig in the Hall Mill.

*New York, Philmont. The plant formerly owned by the Aken Knitting Co. will be operated by the High Rock Knitting Co. without any new organization at present. The same class of goods will be made that the High Rock Knitting Co. is now making. The High Rock Knitting Co. purchased the entire property, including tenement houses and all land, for the sum of $71,250 and has already taken possession. The mill known as the upper Aken plant, containing 8 sets of cards with mules and knitting machines, will be put in operation as soon as repairs and changes can be made adjusting it to the class of work now being done in the High Rock plant. The picking and garnett machinery and also the box making department, now located in the Summit mill plant, is being moved into this Aken plant so that it can be operated as a unit. The lower Aken property will be allowed to remain idle for the present.

*North Carolina, Newton. D. M. Ausley of the Statesville Loan & Trust Co., Statesville, N. C., is president of the Fidelity Hosiery Mills Co., successors to the Newton Hosiery Mills. R. P. Freeze is secretary and treasurer. As reported last March, the plant was purchased under foreclosure proceedings by Mr. Ausley, representing the Statesville Loan & Trust Co., which held mortgage of $20,000 on the property. It is expected additional machinery will be installed later.


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*Cash Capital, $3,000,000.*

| | |
|---|---|
| ASSETS January 1, 1910 | $27,307,672 |
| LIABILITIES (Including Capital) | 14,924,835 |
| RESERVE AS A CONFLAGRATION SURPLUS | 1,200,000 |
| NET SURPLUS OVER ALL LIABILITIES AND RESERVES | 11,182,837 |
| SURPLUS AS REGARDS POLICY-HOLDERS | 15,382,837 |
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## Dyestuffs and Chemicals.

### Acids.

| | |
|---|---|
| Acetic, 100 lbs. | 2.50-2.75 |
| Citric, domestic | 38-39 |
| Oxalic | 7-8 |
| Sulphuric, 66°, 100 lbs. | 1.00-1.70 |
| Muriatic, 18° | 1.15-1.52 |
| Tartaric crystals | 25-26½ |

### Miscellaneous Chemicals and Dyestuffs.

| | |
|---|---|
| Acetate of lime, gray, 100 lbs. | 2.00-2.05 |
| Alum, lump | 1.72-1.80 |
| ground | 1.82-2.00 |
| powdered | 3.00-3.25 |
| Aqua ammonia, 26° | 3-7 |
| Ammoniac, sal, gray | |
| Borax, bbls. | 4-7 |
| Brimstone, crude, ton | 25-71 |
| Copperas | 66-80 |
| Cream tartar, crystals | 26 |
| Fuller's earth, powdered, ton | 21-23 |
| Glauber's salt | 75-80 |
| Potash, chlorate, crystals | 8½-9½ |
| powdered | 10-13½ |
| carbonate | 5-8 |
| Soda, bicarbonate | 1.10-1.50 |
| Soda, caustic, domestic, 60 per cent. | 1.75-1.90 |
| Sal., American | 72-85 |
| Vitriol, blue | 4-7½ |
| Aectate of soda | 4-8 |
| Acid, picric, best crystals | 25-50 |
| tannic, commercial | 31-41 |
| Albumen, egg | 62-70 |
| blood | 25-35 |
| Alizarine, red | 19½ |
| Aniline, oil | 8½-13½ |
| salt crystals | 14½ |
| Bichromate of potash, American | 8-12½ |
| Bichromate of soda | 8-13 |
| Bisulphite of soda | 2-5½ |
| Cutch, mat | 4-9½ |
| Dextrine, imported potato | 5-10 |
| Divi-divi, ton | 41-45 |

## MILL NEWS.

*North Carolina, Winston-Salem. Good progress is being made on buildings for the cotton yarn department of the P. H. Hanes Knitting Co. and it is expected machinery will be installed in October. The main building is 135 by 477 ft.; other buildings include a cotton warehouse, 50 by 100 ft., boiler house, reservoir and operatives' cottages. The machinery equipment will be 10,000 spindles to make yarns for consumption by the knitting department of the company.

California, Los Angeles. A corporation has been formed under the style of the Imperial Cotton Works, with capital stock of $25,000, and will take over the comforter manufacturing plant of E. W. Fox. S. I. Fox of San Diego, California, is president, and E. W. Fox is treasurer, superintendent and buyer. The plant is operated by electric power and the product sold direct.

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Dyers, Bleachers and Mercerizers of

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in skein, and long and short

**CHAIN WARPS**

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Daily Capacity 30,000 lbs.

**Fast Colors and Black for Worsted Trade.**

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Successors to R. Greenwood & Bault

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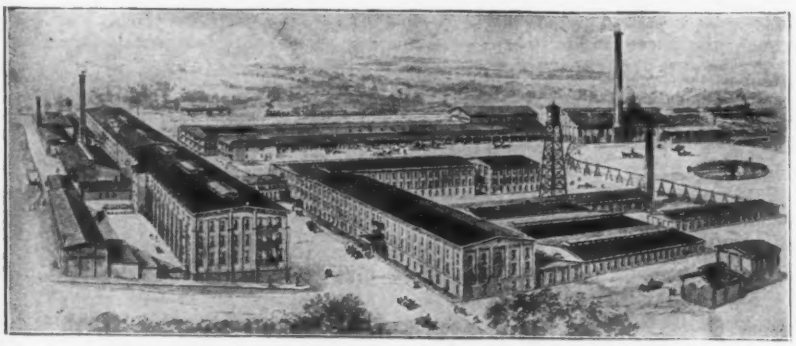

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The cost per year of service is far lower for these roofs than for any other type, owing to their long life and freedom from painting and other maintenance costs.

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## Mill Stocks.

### FALL RIVER MILLS.

| | Bid. | Asked. | Last Sale. |
|---|---|---|---|
| American Linen Co. | 102½ | ... | ... |
| Arkwright Mills | ... | ... | ... |
| Barnard Mfg. Co. | 111 | ... | ... |
| Bourne Mills | 104 | ... | ... |
| Border City Mfg. Co. | ... | 138 | ... |
| Chace Mills | 130 | 137½ | ... |
| Cornell Mills | ... | 200 | ... |
| Davol Mills | 100 | ... | ... |
| Davis Mills | 119 | ... | ... |
| Flint Mills | 101 | ... | ... |
| Granite Mills | ... | 147 | ... |
| Hargrave Mills | ... | ... | ... |
| King Philip Mills | ... | 170 | 170 |
| Laurel Lake Mills | ... | 190 | ... |
| Lincoln Mfg. Co. | 91 | ... | ... |
| Luther Mfg. Co. | ... | ... | ... |
| Merchants' Mfg. Co. | 102 | ... | 102 |
| Mechanics' Mills | 102 | ... | ... |
| Narragansett Mills | ... | ... | ... |
| Osborn Mills | 117½ | ... | ... |
| Parker Mills | 119 | ... | ... |
| Pocasset Mfg. Co. | ... | 148 | ... |
| R. Borden Mfg. Co. | ... | ... | ... |
| Sagamore Mfg. Co. | 170 | ... | ... |
| Seaconnet Mills | 88 | ... | ... |
| Shove Mills | 99 | 100 | 99 |
| Stafford Mills | 101 | ... | 102½ |
| Stevens' Mfg. Co. | ... | ... | ... |
| Tecumseh Mills | ... | 135 | ... |
| Troy C. & W. Mfy. | ... | ... | ... |
| Union Cotton Mfg. Co. | ... | ... | ... |
| Wampanoag Mills | 102½ | ... | ... |
| Weetamoe Mills | 100½ | 101½ | 101 |

### OTHER NEW ENGLAND MILLS.

*Furnished by H. C. Wainwright & Co., 60 State Street, Boston*

| | Par Value. | Last Sale. |
|---|---|---|
| Amoskeag Mfg. Co., N. H. | 100 | 285 |
| Androscoggin Mills, Me. | 100 | 205 |
| Appleton Co., Mass. | 100 | 175⅛ |
| Arlington Mills, Mass. | 100 | 129 |
| Atlantic Cotton Mills, Mass. | 100 | 82 |
| Bates Mfg. Co., Me. | 100 | 265¾ |
| Bigelow Carpet Co., Mass. | 100 | 155 |
| Booth Cotton Mills, Mass. | 100 | 98⅛ |
| Boston Duck Co., Mass. | 100 | 1350 |
| Boston Mfg. Co., Mass. | 100 | 106¼ |
| Cabot Mfg. Co., Me. | 100 | 100 |
| Chicopee Mfg Co., Mass. | 100 | 125 |
| Continental Mills, Me. | 100 | 113 |
| Dwight Mfg. Co., Mass. | 500 | 1180 |
| Edwards Mfg. Co., Me. | 100 | 80 |
| Essex Co., Mass. | 100 | 190 |
| Everett Mills, Mass. | 100 | 140 |
| Fisher Mfg. Co., Mass. | 100 | 121⅛ |
| Franklin Co., Me. | 100 | 130 |
| Great Falls Mfg. Co., N. H. | 100 | 197½ |
| Hamilton Mfg. Co., Mass. | 1000 | 775 |
| Hamilton Woolen Co., Mass. | 100 | 105 |
| Hartford Carpet Co., com., Conn. | 100 | 115 |
| Hartford Carpet Co., pfd., Conn. | 100 | 110 |
| Hill Mfg. Co., Me. | 100 | 115 |
| Jackson Co., N. H. | 1000 | 985 |
| Lancaster Mills, Mass. | 100 | 121 |
| Lawrence Mfg. Co., Mass. | 100 | 170 |
| Lockwood Co., Me. | 100 | 103 |
| Lowell Bleachery, Mass. | 100 | 200 |
| Lowell Hosiery, Mass. | 100 | 42 |
| Lyman Mills, Mass. | 100 | 125 |
| Massachusetts Cotton Mills, Ga. | 100 | 100⅞ |
| Massachusetts Cotton Mills, Mass. | 100 | 115 |
| Merrimack Mfg. Co., com., Mass. | 100 | 55½ |
| Merrimack Mfg. Co., pfd., Mass. | 100 | 92 |
| Middlesex Co., Mass. | 100 | 40 |
| Monadnock Mills, N. H. | 1000 | 1002½ |
| Nashua Mfg. Co., N. H. | 500 | 625 |
| Naumkeag Steam Cot. Co., Mass. | 100 | 143½ |
| Newmarket Mfg. Co., N. H. | 100 | 145 |
| Otis Mfg. Co., Mass. | 1000 | 1852½ |
| Pacific Mills, Mass. | 1000 | 3330 |
| Pepperell Mfg. Co., Me. | 100 | 300 |
| Plymouth Cordage Co., Mass. | 100 | 245 |
| Salmon Falls Mfg. Co., N. H. | 300 | 275 |
| Shaw Stocking Co., Mass. | 100 | 126 |
| Suncook Mills, N. H. | 100 | 89¼ |
| Thorndike Mfg. Co., Mass. | 1000 | 1200 |
| Tremont & Suffolk Mills, Mass. | 100 | 115 |
| Waltham Bleachery & Dye Works, Mass. | 100 | 129 |
| York Mfg. Co., Me. | 100 | 150 |

### NEW BEDFORD MILLS.

*Reported by Sanford & Kelley.*

| | Par Value. | Bid. | Asked. |
|---|---|---|---|
| Acushnet Mills | 100 | ... | 350 |
| Beacon Mfg. Co., com. | 100 | 102 | ... |
| Beacon Mfg. Co., pref. | 100 | 110 | 112½ |
| Bristol Mfg. Co. | 100 | ... | 130 |
| Butler Mfg. Co. | 100 | ... | 150 |
| City Mfg. Co. | 100 | 245 | 250 |
| Crescent Mfg. Co. (silk) | 100 | ... | 100 |
| Crescent Mfg. Co., pfd. | 100 | 95 | 100 |
| Dartmouth Mfg. Co. | 100 | ... | 307½ |
| Dartmouth Mfg. Co., pfd. | 100 | 102 | ... |
| Gosnold Mills Co., pfd. | 100 | 100 | ... |
| Grinnell Mfg. Co. | 100 | 235 | ... |
| Holmes Mfg. Co. | 100 | ... | 107 |
| Holmes Mfg. Co., pfd. | 100 | 107 | ... |
| Kilburn | 100 | 130 | ... |
| Manomet | 100 | 125 | 127½ |
| Nashawena Mills | 100 | ... | 96 |
| Neild Mfg. Co. | 100 | 98 | 99 |
| N. B. Cotton Mills Co. | 100 | ... | ... |
| N. B. Cotton Mills Co., pfd. | 100 | 87½ | 90 |
| Nonquitt Spinning Co. | 100 | ... | 122½ |
| Page Mill | 100 | ... | 125 |
| Pierce Mill | 100 | ... | 460 |
| Pierce Bros., Ltd. | 100 | 100 | ... |
| Potomska Mills | 100 | 130 | ... |
| Quissett Mills | 100 | ... | 99 |
| Soule | 100 | 140 | ... |
| Taber Mills | 100 | 135 | ... |
| Wamsutta Mills | 100 | 130 | ... |
| Whitman Mill | 100 | ... | 195 |

### SOUTHERN MILLS.

*Furnished by Hugh MacRae & Co., Wilmington, N. C.*

| | Bid. | Asked. |
|---|---|---|
| Abbeville Cotton Mills, S. C. | 70 | 75 |
| Aiken Mfg. Co., S. C. | ... | 90 |

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TRADE MARK REG. IN U.S. PAT. OFF.
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For use on spinning frames, etc., we make a special cone belt which has scored a great success. A cotton mill superintendent put Tannate Cone Belts on his "slubbers" where oak belts had worn out in three or four weeks. He kept track of the Tannate belts for six months, then ceased watching them, convinced that they were good enough.

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**¶ Can you run a comb box six to eight weeks on one filling of oil?**

**If not there's one reason for using**

TRADE MARK REGISTERED IN
**NON-FLUID OIL**
UNITED STATES PATENT OFFICE

¶ Can you positively say that your card clothing, floors and drawing cans are not oil spattered?

If not, there's another reason for using **Non-Fluid Oil.**

The other reasons are greater economy of lubrication and reduction in the amount of oil stained goods.

Write today for our Booklet on Textile Lubrication. Address Dept H.

**New York and New Jersey Lubricant Co.**

**165 Broadway, New York.**

| | | |
|---|---|---|
| American Spinning Co., S. C. | 160 | ... |
| Anderson Cotton Mills, S. C. | ... | 50 |
| Arkwright Mills, S. C. | 100 | 103 |
| Augusta Factory, Ga. | 60 | 65 |
| Avondale Mills, Ala. | 116 | 125 |
| Belton Mills, S. C. | 130 | 140 |
| Bibb Mfg. Co., Ga. | ... | 114 |
| Brandon Mills, S. C. | 99 | 101 |
| Cabarrus Cotton Mills, N. C. | 125 | 140 |
| Chadwick-Hoskins Mfg. Co., N. C. | 100 | ... |
| Chadwick Hoskins Mfg. Co., pfd. | 100 | 102 |
| Chiquola Mfg. Co., S. C. | 170 | 180 |
| Clifton Mfg. Co., S. C. | ... | 105 |
| Clifton Mfg. Co., S. C., pfd. | 101 | ... |
| Clinton Cotton Mills, S. C. | 120 | 130 |
| Columbus Mfg. Co., Ga. | 93 | 98 |
| Consolidated Cotton Duck | ... | 6 |
| Consolidated Cotton Duck, pfd. | ... | 19½ |
| Cotton Duck 5s | 77 | 77½ |
| Courtney Mfg. Co., S. C. | 90 | 100 |
| Dallas Mfg. Co., Ala. | ... | 110 |
| Darlington Mfg. Co., S. C. | 80 | 85 |
| Drayton Mfg. Co., S. C. | ... | 100 |
| Eagle & Phenix Mills Co. | 117 | 135 |
| Easley Cotton Mills, S. C. | ... | 170 |
| Enoree Mfg. Co., S. C. | 55 | 65 |
| Enoree Mfg. Co., S. C., pfd. | 95 | 100 |
| Enterprise Mfg. Co., Ga. | 80 | 85 |
| Exposition Cotton Mills, Ga. | 195 | 200 |
| Gaffney Mfg. Co., S. C. | 75 | 85 |
| Graniteville Mfg. Co., S. C. | 160 | 165 |
| Gainesville Cotton Mills, Ga. | ... | 70 |
| Granby Cotton Mills, S. C., 1st pfd. | ... | 35 |
| Greenwood Cotton Mills, S. C. | 58 | 61 |
| Grendel Mills, S. C. | 105 | 110 |
| Henrietta Mills, S. C. | 160 | 175 |
| John P. King Mfg. Co., Ga. | ... | 90 |
| Lancaster Cotton Mills, S. C. | 130 | ... |
| Lancaster Cotton Mills, pfd., S. C. | 97 | 100 |
| Langley Mfg. Co., S. C. | 117 | 125 |
| Laurens Cotton Mills, S. C. | 130 | ... |
| Limestone Mills, S. C. | 150 | 170 |
| Lockhart Mills, S. C. | ... | 90 |
| Lockhart Mills, pfd. | 99 | 100 |
| Loray Mills, pfd., N. C. | 95 | 98 |
| Marlboro Cotton Mills, S. C. | 75 | 82 |
| Mayo Mills, N. C. | 165 | 185 |
| Mills Mfg. Co., S. C. | 100 | 102 |
| Mills Mfg. Co., S. C., pfd. | ... | 100 |
| Monaghan Mills, S. C. | ... | 115 |
| Monarch Cotton Mills, S. C. | 102 | 107 |
| Newberry Cotton Mills, S. C. | 125 | 140 |
| Norris Cotton Mills, S. C. | 127½ | 130 |
| Olympic Cotton Mills, S. C., pfd. | ... | 90 |
| Orangeburg Mfg. Co., S. C., pfd. | 80 | 91 |
| Orr Cotton Mills, S. C. | 100 | 105 |
| Pacolet Mfg. Co., S. C. | ... | 101 |
| Pacolet Mfg. Co., S. C., pfd. | 99½ | 100 |
| Pelzer Mfg. Co., S. C. | 150 | 160 |
| Piedmont Mfg. Co., S. C. | 175 | 177 |
| Poe Mfg. Co., S. C. | 170 | 180 |
| Raleigh Cotton Mills, N. C. | 100 | 105 |
| Richland Cotton Mills, S. C., pfd. | ... | 45 |
| Roanoke Mills, S. C. | 153 | 160 |
| Saxon Mills, S. C. | 127 | ... |
| Sibley Mfg. Co., Ga. | 71 | 73 |
| Spartan Mills, S. C. | 130 | 140 |
| Springstein Mills, S. C. | ... | 100 |
| Tucapau Mills, S. C. | 250 | ... |

| | | |
|---|---|---|
| Trion Mfg. Co., Ga. | ... | 130 |
| Union-Buffalo Mills Co., S. C., 1st pfd. | 70 | 75 |
| Victor Mfg. Co. | ... | 130 |
| Warren Mfg. Co., S. C. | 107 | ... |
| Warren Mfg. Co., S. C., pfd. | 106 | 110 |
| Whitney Mfg. Co., S. C. | 120 | 125 |
| Williamston Mills, S. C. | 120 | 130 |
| Wiscassett Mills, N. C. | 120 | 135 |
| Woodruff Cotton Mills, S. C. | ... | 125 |
| Washington Mills, Va. | 28 | ... |
| Washington Mills, Va., pfd. | 106 | 110 |
| Woodside Cotton Mills, S. C. | ... | 110 |

CANADIAN MILLS.

| | Bid. | Asked. | Last Sale. |
|---|---|---|---|
| Can. Col. Cotton | 62¾ | 63½ | 64 |
| Dominion Textile, pfd. | 102½ | 104 | 107½ |
| Montreal Cotton | 134 | 136 | ... |
| Montreal Cotton, pfd. | ... | 95 | 96 |

## MILL NEWS.

Pennsylvania, Philadelphia. The Rosenhayn Knitting Mills, which were formerly located at Strawberry and Market Sts., have removed to 704 W. Girard Ave., where they are manufacturing sweater coats with E. A. Phillips as manager. L. M. Schiendelman is proprietor.

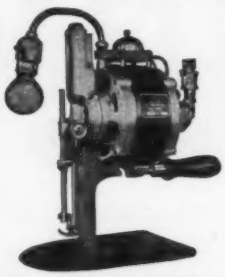
Pennsylvania, Philadelphia. On Sept. 28 the trustee will sell at public auction the real estate of the Branson Machine Co., consisting of mill property 504-8 North American St., Philadelphia, the sale to be subject to the approval of the U. S. District Court. A meeting of creditors will be held Sept. 29 in the office of the referee, 309 Pennsylvania Bldg., 15th and Chestnut Sts., Philadelphia, to confirm the sale. Edward F. Hoffman is the referee in bankruptcy.

Pennsylvania, Reading. The stock, machinery, etc., of the Metropolitan Knitting Mills, Inc., formerly the Rainbow Hosiery Co., have been sold.

Pennsylvania, Siegfried. Young's Hosiery Mill, containing 8 knitting machines operated on men's half hose, has been sold out to other parties, who are now operating it under the name of the Atlas Hosiery Mills.

Rhode Island, Providence. It is reported that the Vesta Knitting Mills will increase their capital stock from $200,000 to $450,000, a large part of the new issue to be preferred stock. The Vesta Mills operate 6 sets of cards and 150 knitting and 150 sewing machines on ladies' and children's wool and cotton underwear, bleaching and finishing the product.


**The BALLARD**



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If it can SAVE other people money why not YOU?

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**ALMOND RIGHT ANGLE TRANSMISSION**

Self-Contained
Noiseless
No Gears
Does Not Throw or Spill Oil

TRANSMITS POWER AT RIGHT ANGLES

Its motion is positive and there is no variation in angular velocity. The Friction Loss is from 7 to 10 per cent. which is less than an ordinary countershaft.

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**Guaranteed Leather Belting**
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Combine strength with lightness, simplicity and durability, the four qualities which stand for economy and make the **Reger One Piece Split Pulley** superior to all others.

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LOGWOOD Blacks properly dyed are economical, fast to fulling and light, add weight, and are of unrivalled beauty.

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**Fast Colors for Wool and Cotton.**
**Full Line of Direct Cotton Colors.**

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*free to mills*

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The latest, fastest and strongest vat dyestuffs.

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## Fast Colors for Cotton and Wool

**Vat Colors** { Thio Indigo Scarlets, Reds, Bordeaux
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For cotton, wool and silk, also cotton printing.

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AS REGARDS SHADE, DURABILITY AND COST OF DYEING, THE BEST SULPHUR BLACK EVER PRODUCED

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are widely used for marking textiles. Absolutely no stains left after bleaching. Write for free sample 120-T.

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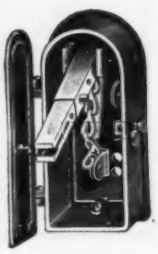

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*All Tests*

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Prime White Caustic Soda, 74-78%

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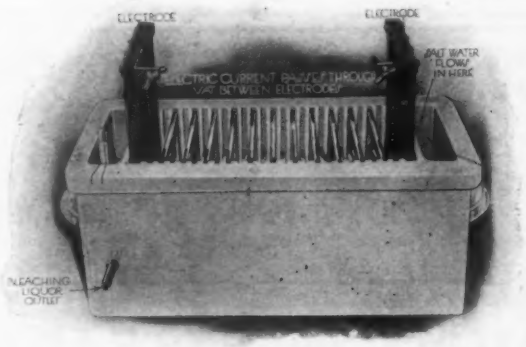


The cut represents our passage type Electrolyzer producing in 8 hrs. the equivalent of 50 lbs. of chloride of lime, operating under 110 or 220 DC, and nothing is used but salt-water and electricity. The liquid produced is uniform in strength, and goods bleached are stronger and better in feel and color.

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Write, giving amount of lime used daily, current available, with costs.

We make machines of special construction for any purpose.

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of every shade and description, absolutely fast to sunlight, fulling, acids, etc.

**Domingo Alizarine and Domingo Chrome Colors for Wool,**

dyeing either after the one bath method absolutely fast, or on chrome bottom.

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Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners.

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## It Pays to Buy Your Supplies from the Makers

The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.
Write for prices and particulars.

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Established 1841 CINCINNATI, O.

**LARD OIL**

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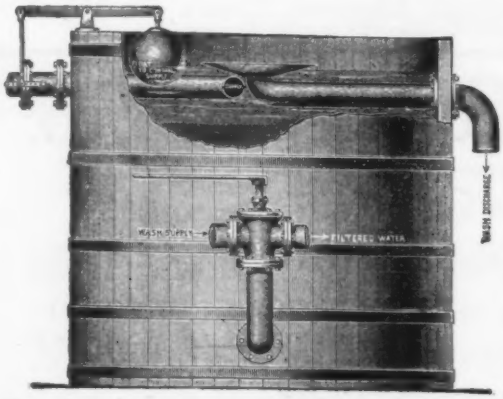
## SUPPLY PERFECTLY FILTERED WATER



Because of the superior construction of our valve, a very fine grade of filtering material can be used.

Where needed in certain localities, a coagulant can be used in exactly the necessary quantity by means of our improved automatic device for regulating the supply.

We install plants of any capacity, and have received many expressions of satisfaction from representative textile mills using Wilson Filters.

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Built to Last

## LARGE TANK WORK A SPECIALTY

Send for catalog. Established 1849.

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# Trucks for Yarn Dryers and Dye Houses

that are designed and built with a wide and comprehensive knowledge of the actual every day requirements in these lines. In trucks as in other lines it pays to buy the best. *Bailey's trucks are the kind you need.* Once tried always used. Tell me your needs and I will tell you about the truck that meets them.

**Frank Bailey,** Manufacturer of Yarn Drying Machinery, Dry Poles, Dye Sticks and Fans, Works at Braddock. P. O. Address, Cedar Brook, Camden Co., N. J.

# G. WOOLFORD WOOD TANK MANUFACTURING CO.

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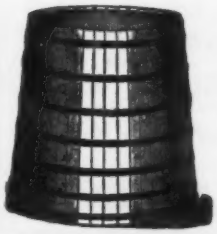

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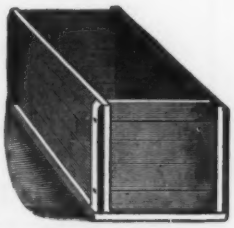
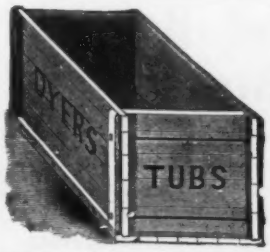
### TANKS AND VATS

For Bleaching, Dyeing and Finishing.

*Reservoir Tanks of any Capacity or Shape for Sprinkler Systems and all purposes.*



**Office 1429 Chestnut St., Philadelphia, Pa.**

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We-Fu-Go and Scaife Water Softening Plants, and Scaife Water Filters can be seen in actual operation in Textile Plants in any part of the U. S. Apparatus designed to suit each special case, and we guarantee results. Write for Illustrated Catalogue.

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Are SCIENTIFICALLY designed to meet the exacting conditions of all TEXTILE requirements.

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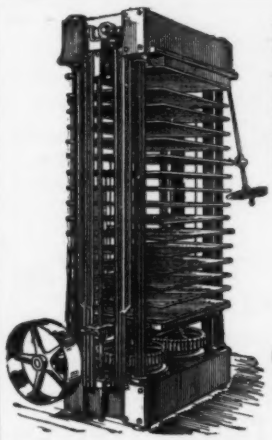
"A LABORER CAN OPERATE THE AMERICAN"



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**For price and particulars address**

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FOR SOFTENING AND FINISHING

FAST BLACK HOSIERY, COTTON, ETC.

Used by the Largest Hosiery and Dyeing Plants in the Country

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For Intensifying the Colors

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Dyed with

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Resolvent Compound, Olive Oil, Bleached Turkey Red Oil, Soluble Oil and Cream Softener

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SOAPS, SOFTENERS, STARCHES

FOR ALL TEXTILES

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Brightest Blues on the Market

Cross Dye Blacks BX & RX. Cross Dye Yellow D.

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Fast to Milling, Light and Cross Dyeing.

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# STEEL TOWERS

These towers and tanks are carefully designed and proportioned to stand full water capacity and wind pressure.

Cut shows 30,000 gallon tank on a 60-foot tower.

Our broad experience and skill enables us to erect these towers anywhere, cheaper than local mechanics can do it.

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of all sizes and styles, but all of the best quality for all mill uses. Complete catalogue free.

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Dyeing of Textile Fabrics

By HUMMELL

IS a mine of practical information on cotton, wool and silk dyeing and preparation of material for dyeing.

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from standpoint of economy as well as quality of fabric.

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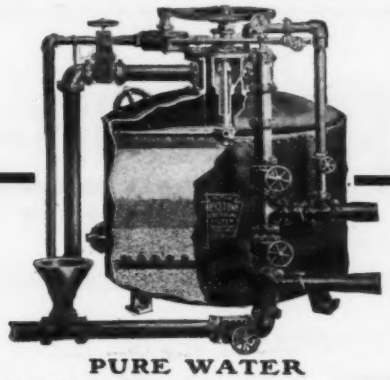

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for the boiler, and for all industrial purposes can be had at a very trifling cost by installing a

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If you are having trouble we'll cheerfully furnish estimates free.

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## Use it in Your Mill

You must spend money to save money—you can DOUBLE, and in some cases TRIPLE the life of flooring and other woodwork in mills by coating the wood with

# Avenarius Carbolineum

(*On the market since 1875*)

It can be applied with paint brush, or a spraying machine, or the timber can be dipped in the compound. All who use it commend it. The following is quoted from a letter sent us by the **Ossipee Cotton Mills, Elon College, N. C.**

"We have used your wood preservative upon outside wood tank trestles, and in putting wood down in cement floors for catching the wood top floor, and we find it to be a most excellent thing, for the above purposes, and it can be used to great advantage in many other ways in and around a Cotton Mill. This is certainly a most excellent preserver of wood."

Write for Bulletin No. 34—it gives facts you should read. Contains more of what others who know say, than of what we claim.

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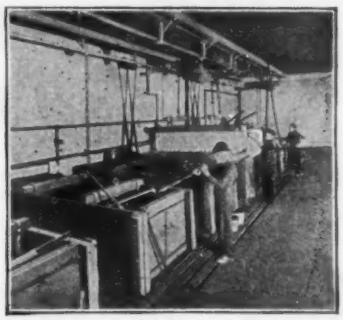
This cut shows a new and useful machine patented by D. F. Waters for the dyeing of any color on Worsted, Woolen, Cotton and Merino Yarns.



Being successfully operated by some of the largest manufacturers in the country.

The saving of labor will more than pay for a machine in a few months.

Capacity 2,000 lbs. a day per man.

Machine can be seen in operation at any time at my plant where I have 13 in operation all the time.

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## Braids and Edgings

FOR TRIMMING

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Correct Goods
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## Mills: Germantown, Philadelphia

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# Full Fashioned Hosiery Machines

BUILT BY

## SCHUBERT & SALZER

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**Largest Manufacturers of all Classes of Hosiery Machines**

Best constructed and most productive machines in the market for the manufacture of Full-Fashioned Hosiery in Cotton, Lisle or Silk in all gauges, from 14 to 32 needles to the inch, from 12 to 24 sections.

Split-Sole, Plaiting, 2, 3 or 4 Color Striping
Single or Double Lace Attachment.

**Also: New Jacquard Lace Hosiery Machines.**
**Ribframes Winders**

REFERENCES:—All the leading manufacturers of full-fashioned hosiery in this country.

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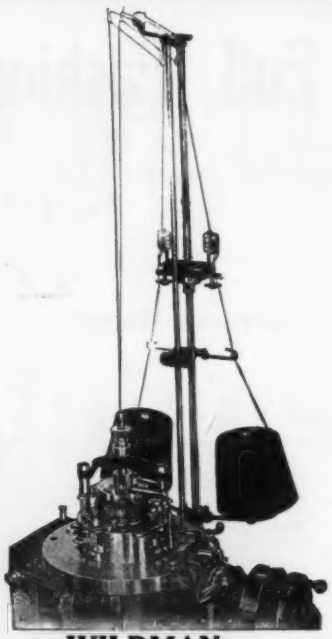
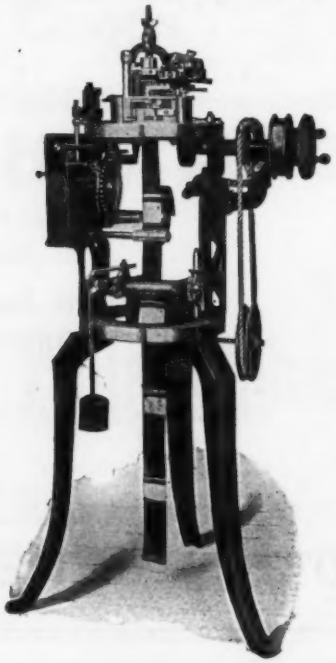
## Circular Rib Knitting Machinery
## AUTOMATIC STOP MOTIONS
## ELECTRIC CLOTH CUTTERS



**WILDMAN**
**Chainless RIBBERS for Hosiery**
**With Automatic Attachments for Striping, Splicing, Selvage Welt and a TWO-SPEED DRIVE**
To Increase and Improve the Product
**WILDMAN AUTOMATIC STOP MOTIONS**



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**For Underwear, Union Suits, Sweater Coats, Knitted Skirts, etc.**
Established Reputation for Large Production, Quality of Fabric, Durability and Economy of Operation.
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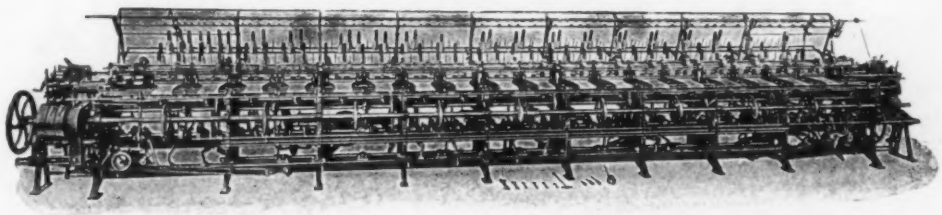
**All Special Machines for Any Article That Is Knit**

## Full Fashioned Hosiery Machines

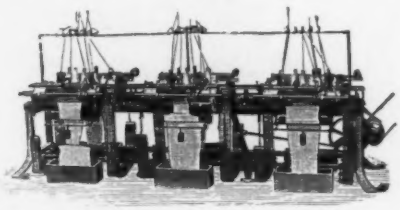
System **G. Hilscher, Chemnitz, Saxony**



**18 Section "COTTON HILSCHER" Machine for Full Fashioned Hosiery, Silk, Cotton, Wool, etc**
Gold Medal, Paris, 1900 Numerous Patents Covering Special Improvements

**GROSSER Flat Knitting Machines**

For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



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C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

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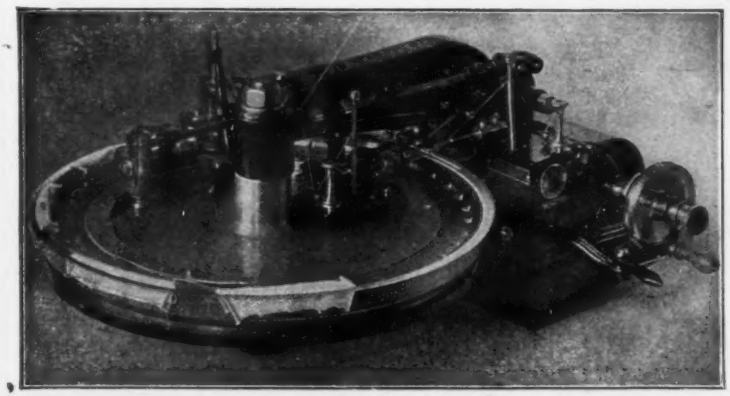
For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

**The LOOPER THAT LOOPS!**

Two thread lock stitch machine with reliable trimmer and rave.ler producing *indestructible, flat elastic* seam.

No hosiery or Underwear plant up to date without this machine.



**DIAMOND OVERSEAMERS**

for all classes of selvage goods, Full Fashioned Hosiery, Underwear, etc.

**FINISHING MACHINES**

for Knit Goods of all styles.

**WINDERS**

for finest yarns.

**Information, Samples and Specifications at Your Disposition**

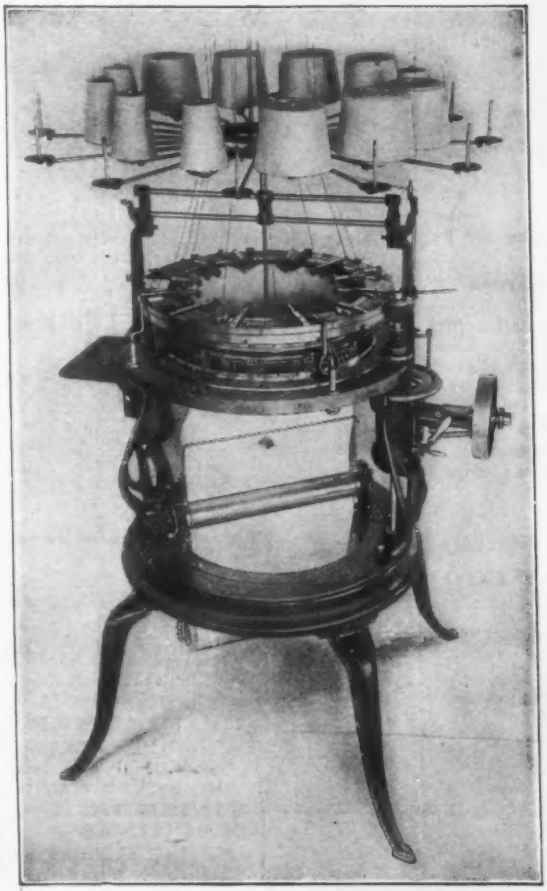
INTRODUCTION TO AMERICAN KNITTERS

*OF THE*

# Wilcomb Spring Needle Knitting Machine

THE WONDER OF EUROPE

For Underwear, Balbriggan, Rubber Linings
Stockinette, etc.



Diameters up to 24 inch
Gauges up to 24 Needles per inch
Six to Sixteen Feeds
Fabric equal to finest French Webbing
Unequalled Production
Extreme Simplicity
Low Operating Costs
Machine Self Contained

If you are interested in producing better fabrics at lower costs than from your present equipment, or want to take on higher class lines than you can now produce, you should acquaint yourself with this machine.

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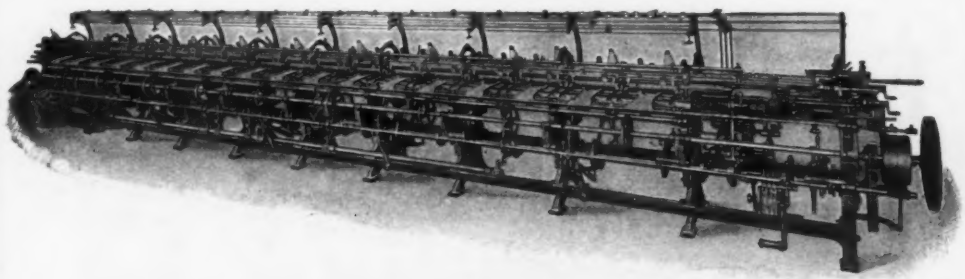


# David Richter, Inc.

were the first machine builders in Chemnitz, Germany, to construct

## Full Fashioned Hosiery Machines

upon the *Cotton principle* and which since their introduction have never been excelled by any other machine builder, be it in construction or production. Built in all gauges and for any material, cotton, wool, lisle or silk.

## Edward Dubied & Co.

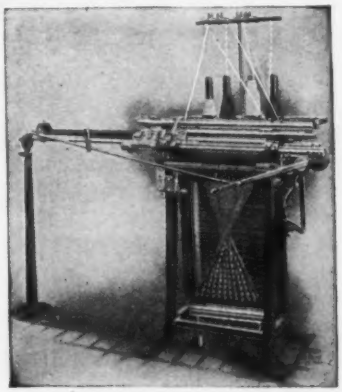
**Couvet, Switzerland,**

## Flat Knitting Machines

**FOR HAND AND POWER, FULL AUTOMATIC, ETC.**

**PEARL STITCH (Left and Left) Machines**
**Jacquard Machines**

Best constructed and most productive machines on the market for manufacturing sweaters, gloves, sporting goods, etc.



**Acknowledged by experts, users and judges to be**

## "The Best."

Machines can be seen in operation.

**Flat Rib Cuff Machines, improved cotton system. Double Rib Warp Looms. Warp Knitting Machines. Netting Machines, system "Double locker." Winders. Standard Overseamers.**

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**Rooms 520-521** **350 Broadway** **New York, N. Y.**

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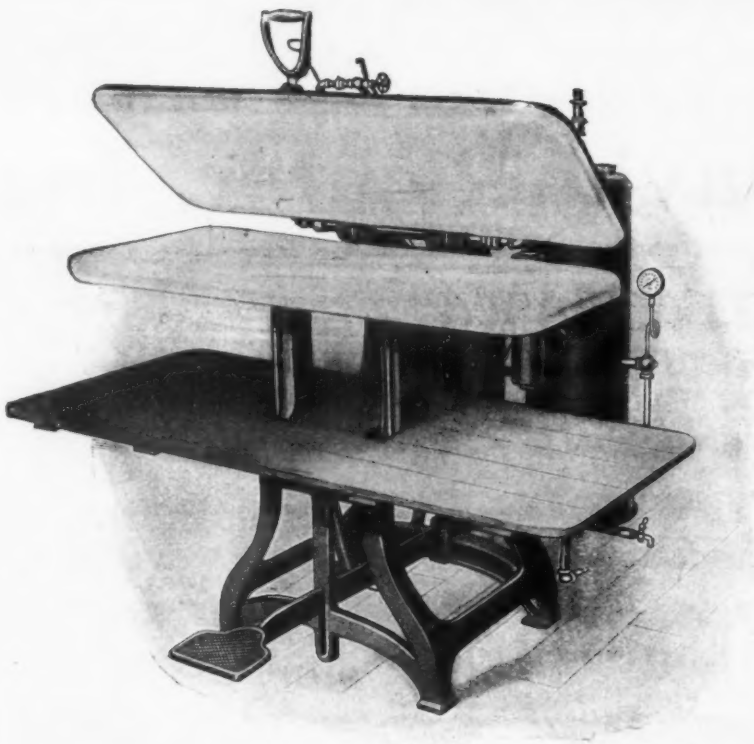

**Proper FINISH to your Underwear means increased trade**

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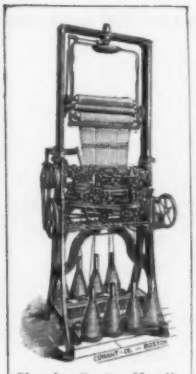
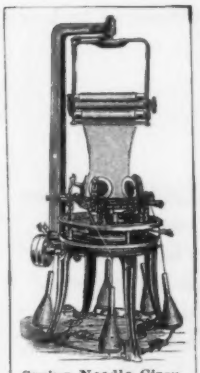


Circular Spring Needle Rib Top Machine.

## Knitting Machinery

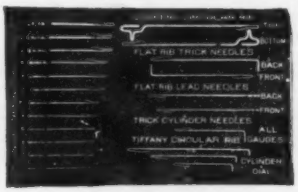
Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



Spring Needle Circular Plain Body Machine.

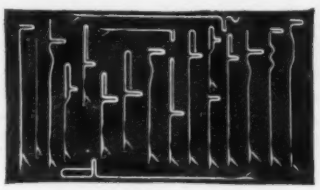
## *Spring Needle Cylinder Rib-Top Machines*

For making Cuffs, Drawer Bottoms and Shirt Borders.




Spring Needles.

**Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.**



Latch Needles.

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EUROPEAN REPRESENTATIVE.

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1x/4 Schubertgasse, Nr. 22, Vienna, Austria.

Higher Speed

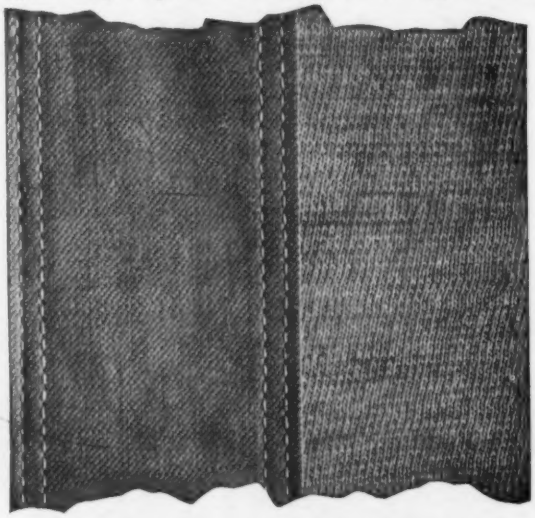
## To Reduce Cost of Production by Increasing Output of Operators

Higher Efficiency

USE

# Multiple Needle Machines

**For all Multiple Needle Operations, whether for Ornament or for Service, where it is desired to have a plurality of parallel rows of stitching, needles spaced as desired**



Yielding Bottom Presser Foot to be used where different thicknesses of Fabric are being Stitched Simultaneously

Special Fittings and Attachments now ready for Numerous Manifold Operations

Greater Simplicity

Style 16100 A-4 Needles-8-80-8 Gauge
Stitching Front Facings to Shirts
One Operation

Greater Durability

# Union Special Machine Company

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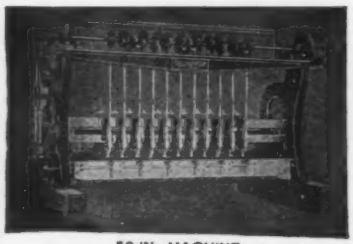

50-IN. MACHINE

# L. F. FALES

MANUFACTURER AND BUILDER OF

SEWING MACHINES

For all purposes where a number of rows of stitching are required. With either form of stitch, single thread chain, double thread chain, or lock-stitch, sewing material from 1-16 in. thick, up to 1 in. thick, and up to 120 in. wide. Furnished with any required number of needles, spacing to suit requirements.

DESIGNER OF SPECIAL MACHINERY

WALPOLE, MASS.
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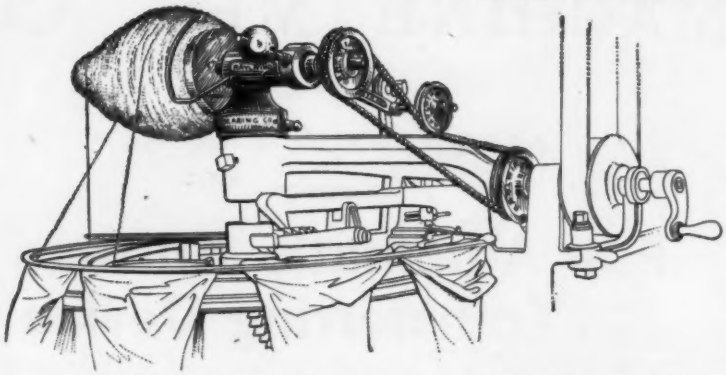
PAPER SLITTING MACHINES

## The "RAVLWIND" Saves

### $2 to $3 a Week on Each Looping Machine



It automatically unravels and winds the yarn of the loopers' course after the fabric has been placed upon the points of the looper at its proper course. Can be attached to cap or head of any standard looper.

In some cases the "RAVLWIND" will increase production as much as 40%.

**Arguto Oilless Bearing Co., Wayne Junction, Phila., Pa.**

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HEPWORTH & CO.'S

**Patent Single-Stitch**

## Looping Machine

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

**Single and Double Stitch or Both Combined.**

JOHN W. HEPWORTH & CO.,

**N. W. Cor. Lehigh Ave. and Mascher St.**

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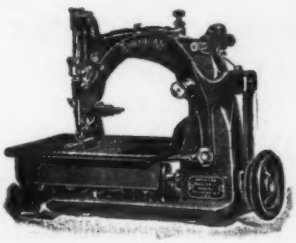


## Elastic Stitch Sewing Machines

### For Seaming and Trimming Knit Underwear and Hosiery at Reasonable Prices

Dewers Toggle Trimmers or Shear Trimmers Twin Needle Machines for Fancy Stitching. Two Needle Machines for two-row stitching in one operation. Single needle machines for finishing. Speed as fast as any other make.

Ravelling attachments for any round, circular looping machines for ravelling the toes of hosiery or knit underwear full fashioned.

AMERICAN RAVELLER COMPANY, · Philmont, N. Y.

# EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

BUILDERS OF

**Full Automatic Knitters**

With or without **Transferring Device**

ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

# Circular Knitting Machine

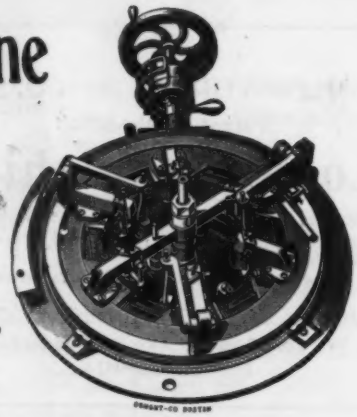
**Plain or Full Automatic**

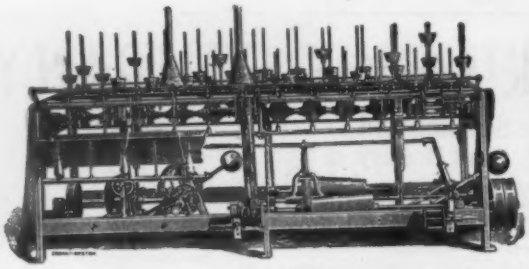
with stop motions complete.

## 4 to 24 Feeds

FOR RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.





THE WELL KNOWN

**ABEL WINDERS, SEAMERS and LOOPERS**

ARE ALSO BUILT BY US

**LEIGHTON MACHINE CO., Manchester, N. H.**

# A. W. ALLEN
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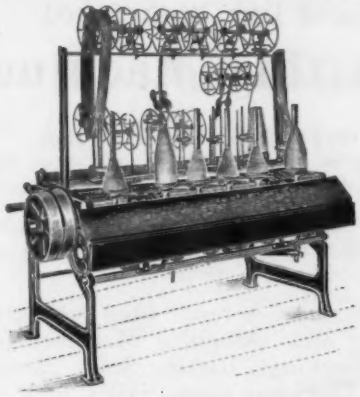
## WINDERS



6 SPINDLES UP

**The best winder on the market. If you are not using one or more try one.**

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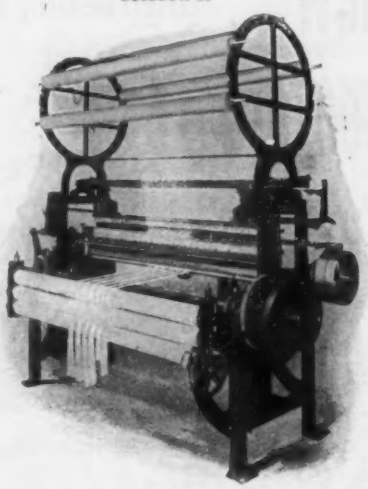
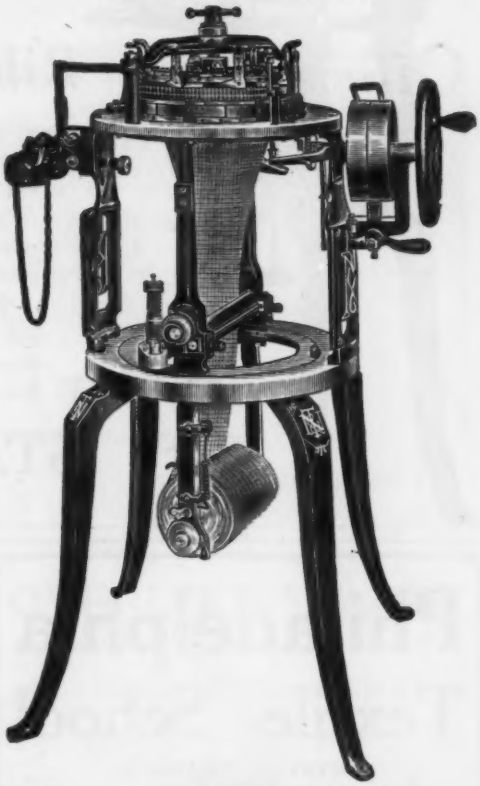
BUILDER OF



Lace and Edging Machine

Also Textile and Special Machinery
Rib Knitting Frames

# NYE & TREDICK CO.
**718-720 Cherry Street**
**PHILADELPHIA, PA.**



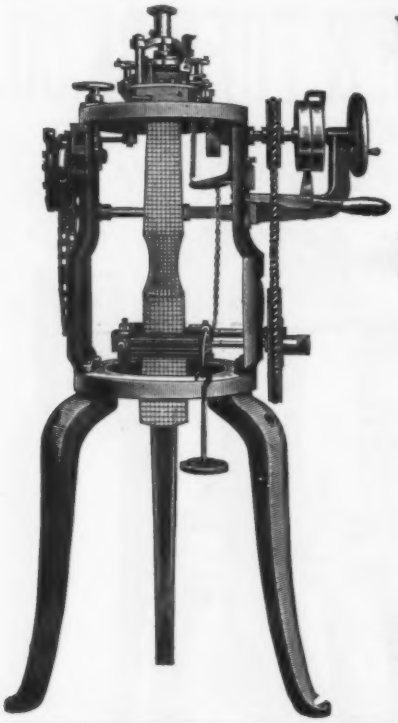
## Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

**LATEST IMPROVEMENTS**

**Quality of Fabrics and Production**
**UNEXCELLED**

**NYE & TREDICK CO.**



# You Will Increase Output

and

# Decrease Your Expenses

By Using Our High Speed

# Rib Knitting Machinery

Our latest models will cause fewer seconds, less breakage of needles, less jar, wear and tear, than machinery designed for lower speed.

While effecting this saving, it decreases your production cost and so increases your profit.

The same economies result from the use of our Stripping and Designing Machines for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

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TWENTY-SIXTH SEASON

Oldest in America
Most Complete in the World

Endorsed by the Leading
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Cotton, Wool, Worsted and Silk

Instruction given in Designing, Weaving, Carding, Spinning, Chemistry, Dyeing and Finishing

Special Courses in
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Day and Evening Instruction in

Picking,
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Designing,
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New Bedford Textile School
New Bedford, Mass.

# Ribbed Hosiery and Underwear Makers

**You Can Double Your Present Production Without Adding New Machinery**

fill your orders in half the time now required—do in 6 months as much work as you now turn out in 12, by using the *new patented*

## Double Acting Attachment for Ribbers

It makes good Ribbers better; reduces the necessary space; is built on the interchangeable plan. We can change over WILDMAN, BRINTON, or SCOTT & WILLIAMS machines.

Secure this Double-Acting Attachment and increase your output 50%. Tests prove our claims.

Machines exhibited and sold by

## James Taylor

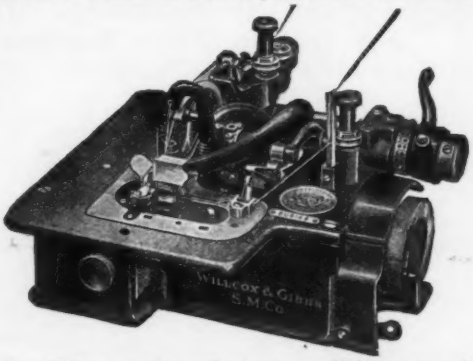
**Dealer in New and Second Hand Knitting Machinery**

**121 Arch Street, Philadelphia, Pa.**

## The Willcox & Gibbs "OVERLOCK" System

(Trade Mark Reg. U. S. Pat. Off.)

is the High Standard of SEAMING *in one operation,* also of OVEREDGING, and HEMMING of KNIT UNDERWEAR and HOSIERY, where ECONOMY and EXCELLENCE of finish are carefully studied.




The "OVERLOCK" Machine is now sold as well as rented.

Trade Mark Reg. U. S. Pat. Off.

Business Estab. in 1859.

3,000 Perfect Stitches Per Minute where factory conditions permit.

WILLCOX & GIBBS SEWING MACHINE CO.

Chief Office, 658 BROADWAY, NEW YORK, N. Y.

WILLCOX & GIBBS SEWING MACHINE CO., Ltd.

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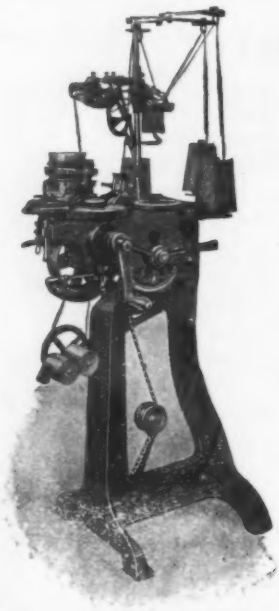


# THE INVINCIBLE

## Full Automatic Knitter

The machine that stands for

## QUALITY OF PRODUCT

**Jenckes Knitting Machine Co.**

SUCCESSOR TO
KNITTING MACHINE DEPARTMENT OF
E. JENCKES MFG. CO.

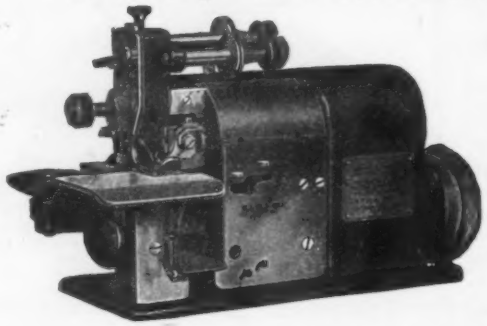
**Pawtucket, R. I.**

**Philadelphia Office, 633 Arch Street.**

# The Merrow

**High Speed Overseaming, Overedging and Scallop Stitch Machines are**

**FAST**
**DURABLE**
**Light Running**



***OUR STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.***

USE STYLE 18 for Horse Blankets.
STYLE 17 or 22 for Bed Blankets.
STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

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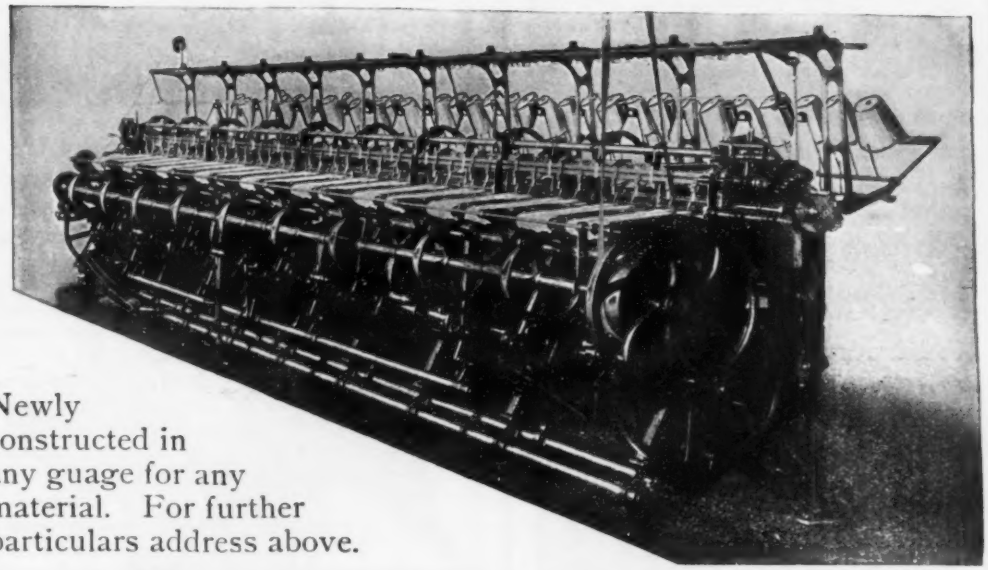
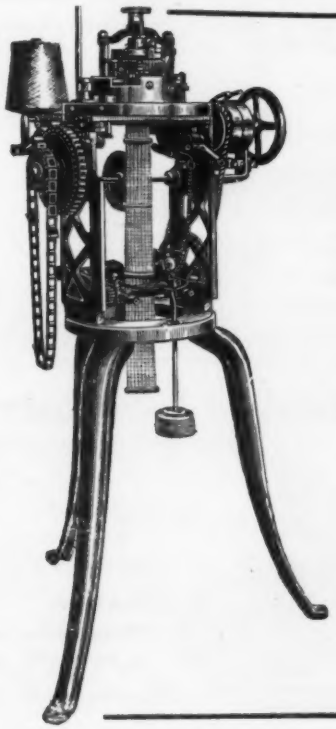
**WOLFGANG RICHTER,** 522 North 4th St., Phila., Pa.

Builder of

**FULL FASHIONED HOSIERY MACHINES**



Newly constructed in any guage for any material. For further particulars address above.



**Expense-Reducing**

**Knitting Machinery**

FOR

**Hosiery, Underwear, Sweaters, Toques, etc.**

You can economize on production costs by using our

**Improved Automatic Ribber**

AND

**Full Automatic Knitter**

**Estimates Furnished for Complete Equipments**
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**H. Brinton Co.**

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Established 1870 —Incorporated 1890.

## CRANE M'F'G. CO.

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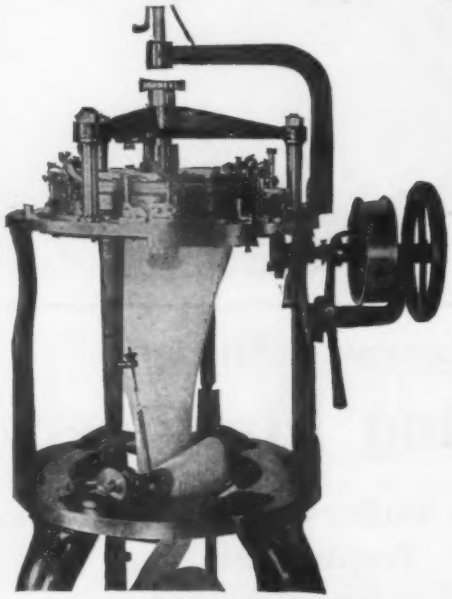
Manufacturers of

**Spring and Latch Needle Machines for both rib and plain work,** producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.

The Pepper flat machine, which we build, is particularly well adapted for knitting collarettes.



SPRING NEEDLE RIB MACHINE

## GENERAL MACHINE WORKS

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Manufacturers of

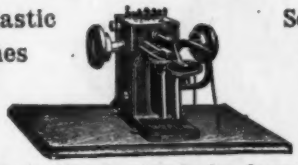
# Ribbers

**for Hosiery, Underwear and Gloves. Splicers and Sleevers**

We carry a large stock of needles and can supply your wants promptly. We are prepared to cut cylinders and dials promptly and accurately. We develop and market new ideas for any one. Your inquiries will be appreciated.

## AMERICAN OVERSTITCH

Long Elastic Stitches



Soft Flat Seams

Unequalled for finishing **Sweaters in One Operation.** Sewing in **Sleeves** with **Loops** on. For **Knit Gloves,** etc.

*SAVES TIME—TROUBLE—LABOR*

Write now **CHARLES H. BRIDOUX & CO.**

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Manufacturers of

**RAG PRESS BOARDS**

Especially Adapted to

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Also

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Medals awarded at Paris and Melbourne Expositions.

**Jacquard Cards**

of all Grades for Fancy Weaving. Accurately Cut to Any Size.

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**Single, double and two thread Stitch.**

with the Patent Raised or Straight Points.

**Beattie Manufacturing Co.,**

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*"Mayo's New Model A"*

FULL
# Automatic Knitter

Recognized by "Up-to-date Manufacturers as the most successful machine on the market.

Over **2400** sold and delivered last year

*Write us for particulars and prices*

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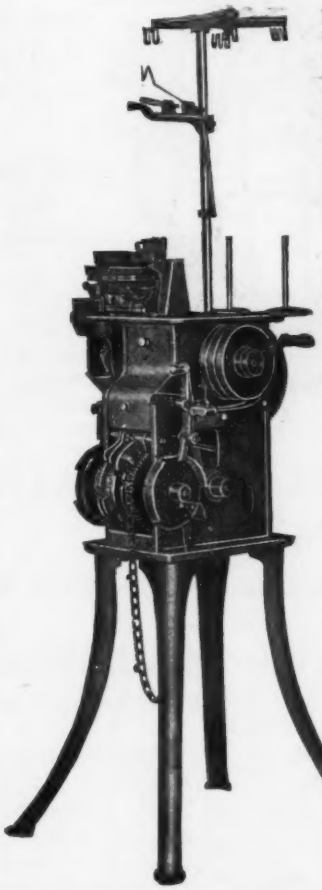
Laconia, N. H., U. S. A.

*Philadelphia Showrooms, Knickerbocker Bldg., Cor. Sixth and Arch Sts.*

# "THE BANNER"
# Hemphill's Latest

**A FULL AUTOMATIC MACHINE**

Specially adapted to



Manufacture Hose with Linen or Mercerized heel or toe.
Also for

**Plaited Goods**

and

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**High Splice**

and

**Double Sole**

Largest Production

More Yarn Changes

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Simplest

Least Repairs

**Produces a Superior Quality of Work.**

MANUFACTURED BY THE

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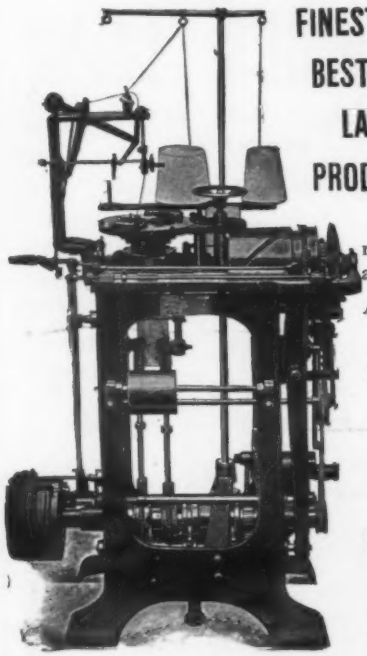
# "NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

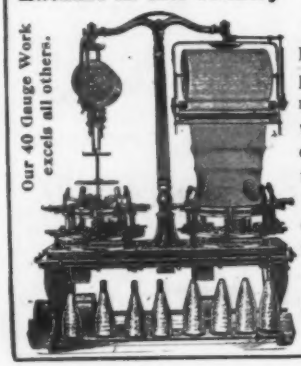
Also Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

## NATIONAL AUTOMATIC KNITTER CO.

1028 Susquehanna Avenue, PHILADELPHIA, PA.

## We are the Oldest Manufacturers

**of this Design of Spring Needle Knitting Machine in this Country**



Our 40 Gauge Work excels all others.

**40 years' experience**

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

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**Do you want the biggest production with the least menders, for the least money?** If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

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SEAMLESS HOSIERY

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**Franklin, N. H.**

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

**Manufacturers like our Latch Needles**

because we make a superior grade of needles.

**Philadelphia Office, Knickerbocker Bldg.**

## STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

**Plain Goods**
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**Three Color Stripes**
**Tipped Heel and Toe**
**White Foot**
**Changed Heel and Toe**
**Garter Top**
**Loopers Slack Course**

**Most Stockings—Best Fabrics—Longest Life**

**Standard Machine Company**

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**We Are the Oldest Manufacturers**
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

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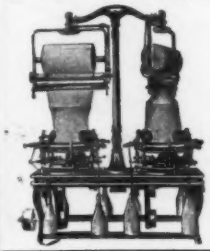
We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



**Tompkins Knitter**

This design was adopted in 1875.
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

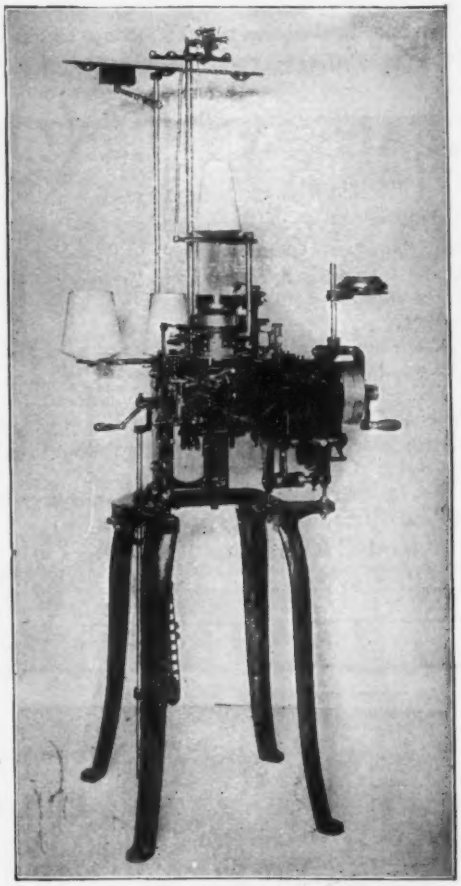
## Full Automatic Knitters

For Ladies', Half Hose and Footing, also for

**Ladies' Split Sole and Lace Hose**

Full Fashioned Legger and Heeler for Full Fashioned Hose.

Measure lengths like a Rib Frame.



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**LEADER OF KNITTERS**

**Original and Still the Best**

Most widely used ; being operated in every civilized country.

**Our Collarette Knitter Knits almost any conceivable style and with selvage ends.**

**Circular Rib Top and Seaming Machines.**

Send for Prices and Catalog.

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Knitting Machine
**COMPANY,**

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**We Lead in the Industry of Knitting Machines.**

**130,000 Knitting Machines in use all over the Universe**

# CLAES & FLENTJE

**Mühlhausen Thr., Germany**

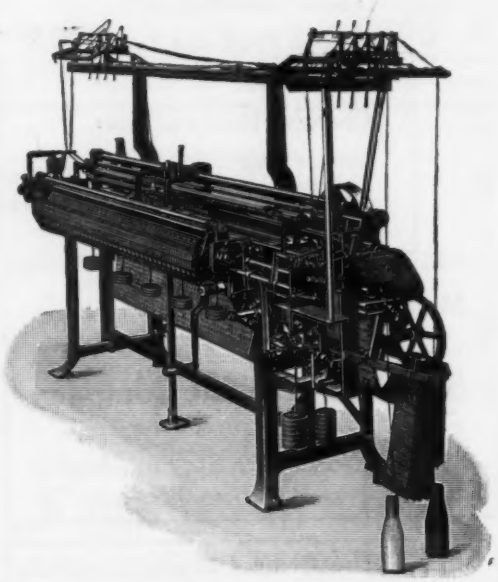
**(Largest Knitting Machine Factory in the World)**

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

The cut represents our newly patented fully automatic left and left power machine for producing fancy stitches that formerly could only be produced by hand.

For full particulars, needles and supplies for all kinds of knitting machines, write to



**Ainslie Knitting Machine Co.**
**281 Ainslie Street, Brooklyn, N. Y.**

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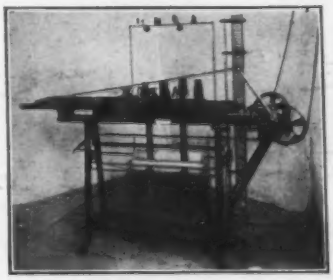

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**39-41 Ashmead St., Germantown, Philadelphia**

Manufacturer of

## Flat German Knitting Machines

**OF ALL DESCRIPTIONS**

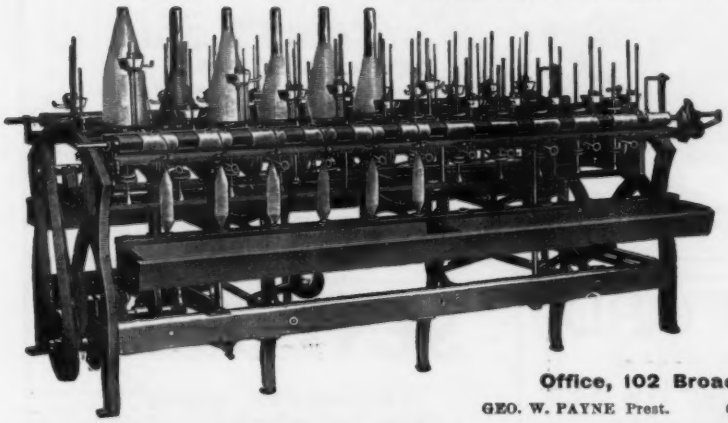
**AND**

## High Grade Improved Changeable Color Necktie Machinery

For Flat or Tubular Fabrics. General Repairing, changing needle beds and hand machines to power, either plain or automatic. Parts and needles always on hand for prompt shipment.

# OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

## Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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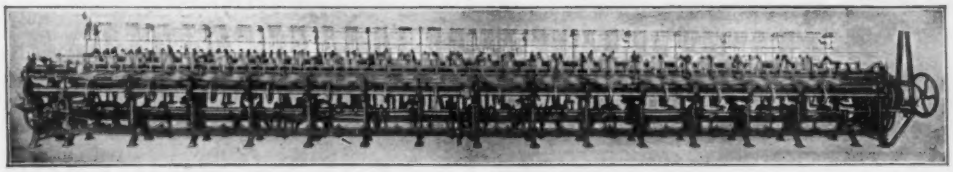
[Est. 1865. Inc. 1903.]

Office, 102 Broad Street, Pawtucket, R. I.

GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.



## H. ALBAN LUDWIG, Chemnitz, Saxony

MANUFACTURER OF THE FAMOUS

## Ludwig's Full Fashioned Hosiery Machines

(COTTON'S SYSTEM)

SPECIAL IMPORTANT FEATURES { PAT. DIVIDED NARROWING MACHINE
PAT. INTERNAL CAM-MOVEMENT
MOVABLE STRIKING-OFF COMBS

*RIB-TOP MACHINES (LUDWIG'S HIGH SYSTEM, COTTON'S SYSTEM).*

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## New Jersey Wire Stitcher

Highest Grade

Machine for Rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Send for Catalogue.

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PHILADELPHIA

## Eureka Fire Hose

*THE BEST FIRE HOSE MADE.*

(Trade Mark.)

For use in

Cotton Mills, Woolen Mills and Factories.

Seamless Woven and Rubber lined EUREKA COTTON HOSE, has no equal. Send for circular and testimonials.

Awarded Gold Medal at the St. Louis Exposition, 1904.

EUREKA FIRE HOSE MFG. CO.
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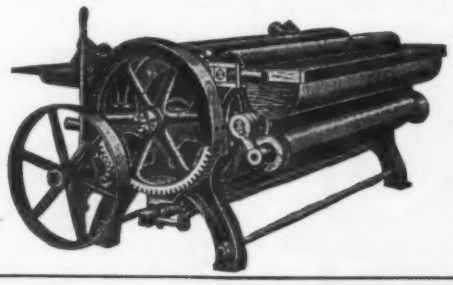
## Automatic Ironing and Pressing Machine Reduces Finishing Expenses 50%



In comparison with other machines (for use on knit goods, ribbed, flat and fleeced lined underwear) this machine will save you 50% through increased production and decreased expenses of your **Finishing Department.**

**BREAKS NO BUTTONS.**

It is adjustable to all grades, and gives a finer finish than that obtained on any other machine.

**Capacity of smallest size 600 dozen per day.**

Write for details and references.

**The Consolidated H. S. & L. M. Company**

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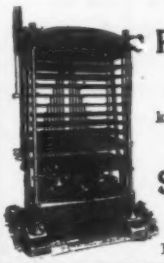
HOLLOW STEAM

PLATE PRESS

For Knit or Woolen Goods



The most reliable machine of the kind on the market.

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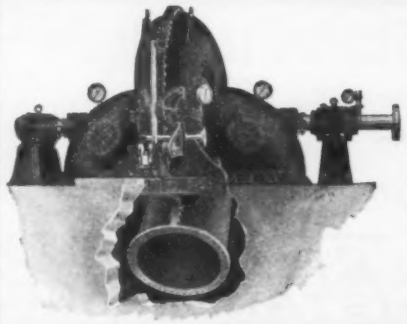

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Engraving Represents One Pair Developing 4650 Horse Power, 360 Revolutions, 150 Ft. Head.

WE DESIGN TURBINES FOR VARIOUS SPEEDS AND POWERS FOR HEADS UP TO 600 FEET

Correspondence Solicited

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# DEPENDABILITY

is the big requisite in a water wheel governor. Breakdowns mean enormous expense—something no mill owner cares to stand. The Woodward is always on duty—affords perfect control of greatest load changes—and assures quick action of turbine gates without a trace of racing.

WOODWARD WATERWHEEL GOVERNORS

have—by forty years of accurate service in textile, paper, and other mills—proved themselves *mechanically* correct. Of the Compensating Type shown—completed 12 years ago—over 2000 are now in use; and our repair sales on each have averaged but **20 cts. a year.** Write for

FREE SUBSCRIPTION TO "Power Control"

A new magazine for water power users, and catalog of mechanical water wheel governors for all purposes. Every one guaranteed to give satisfaction. Don't buy until you investigate the Woodward.

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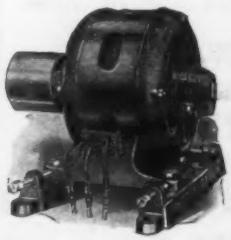

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are generously designed where generosity counts. Their overload capacity, starting torque, temperature rise, bearing surface, etc., are liberal. They are built to stand up to their work and more.

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**The Holtzer-Cabot Electric Co.**
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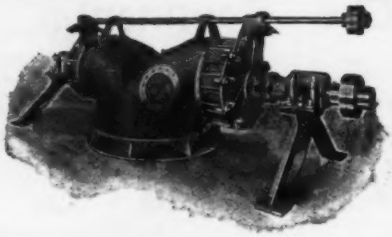
WE especially desire inquiries from parties who would like to derive more power from their water supply, particularly in seasons of drought. We believe that there is not a water power in use which our turbines and our special designs for installation cannot greatly improve.



**Power and speed for any requirements**
**Steel Penstocks a Specialty**

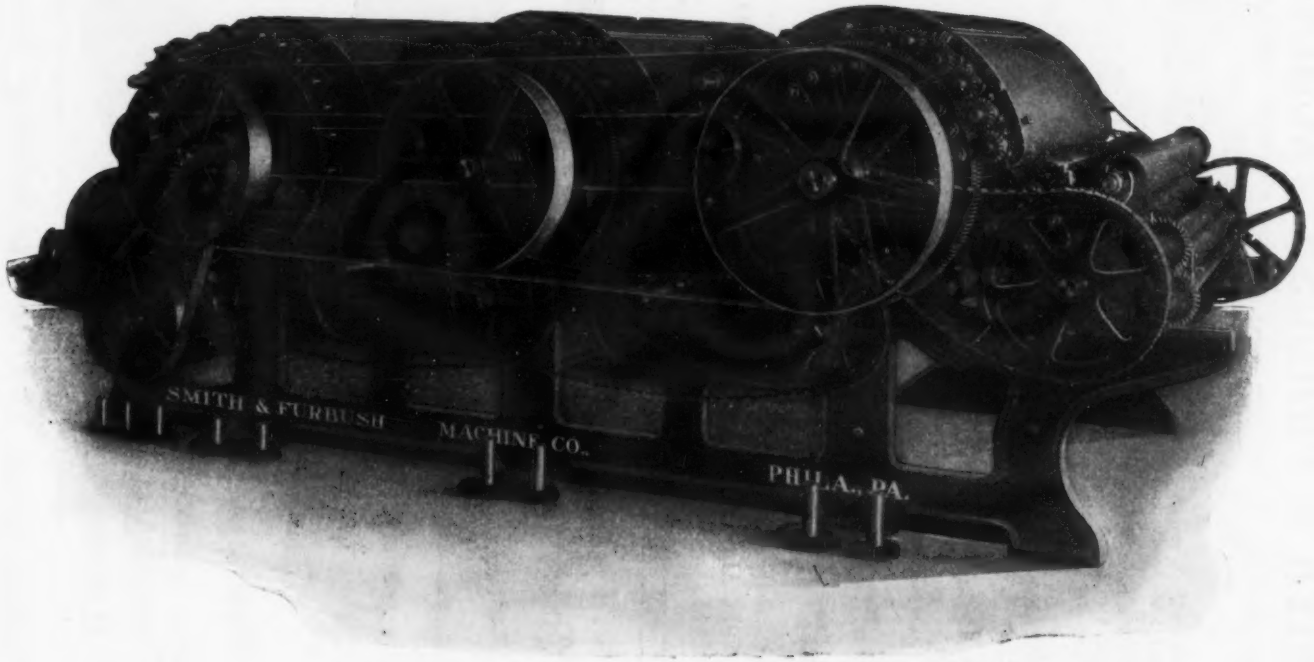
**RODNEY HUNT MACHINE CO., ORANGE, MASS.**

See our Woolen Machinery advertisement on page 55.

BRANCH OFFICE: 70 Kilby Street, Boston, Mass.

# Smith & Furbush Machine Co.

Philadelphia, Pa.




Three Cylinder, 30″ x 60″, Garnett Machine, with 16″ Metallic Breast and fitted with closed-in arches and covers, and Single 11″ Fancies.

# SMITH & FURBUSH MACHINE CO.,

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**CARDS** { Woolen, Worsted, Cotton Waste and Shoddy Cards.

**FEEDS** { Self Feeds for wool, worsted, cotton, or jute, also Camel Backs, Blamires, and Apperleys for Cards.

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**GARNETT MACHINES** { For carding cotton and woolen waste clippings, etc., also for manufacturing batting or felts for Comforts and Mattresses.

**PICKERS** { Lumpers; Rag and Carpet Shredders; Rag, Burr, Wool and Fearnaught Pickers.

**WILLOWS** { Square Box and Cone Willows and Dusters.

**MULES** { Heavy and Durable, for Wool and Waste Yarn.

**TWISTERS** { Plain and Fancy Twisters for Flake Loop or Bourette Yarn.

**BOBBIN WINDERS** { Automatic Jack Bobbin Builders; Adjustable Creels for different length spools.

**WARPING MACHINERY** { Copper Cylinder Warp Dressers with single and double size pans; Beamers; Section Warp Mills; Warp Mills; Dresser Spoolers for worsted or wool.

**GRINDERS** { Floor, Traverse and Portable Grinders for Cards, Garnetts or Rag Pickers.

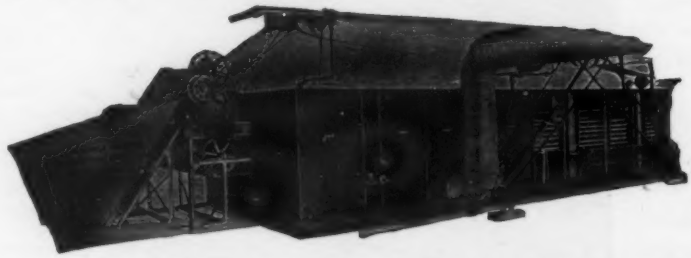
Machinery for Manufacturing Rewoven Bagging from Old Gunny Bagging.

**SPECIAL CIRCULARS FURNISHED FOR EACH MACHINE.**

**Look on the Other Side of This Page.**



# *Proctor* Drying Machines *Fire Proof*



**Yarn Dryers**
**Scouring Machines**
**Fans**

## BUILT of METAL

**Stock Dryers**
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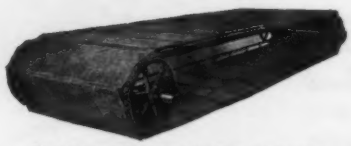
**Apron troubles overcome by the Interlocking Chain Conveyor**

**It needs no adjustment**



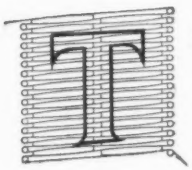
**Conveyor Separate from Dryer**

**Address Dept. E.**

## Philadelphia Textile Machinery Company

**Hancock and Somerset Streets** **PHILADELPHIA, PA.**

Southern Representative, H. G. MAYER, 1212 Realty Bldg., Charlotte, N. C.



THE new type horizontal **Cell Drier** is built on the unit system.

¶ The machine has no frame. The cells are piled one upon another, dowell pins and keys preserving the alignment.

¶ The roll boxes are dovetailed and bolted to the cells, and it is therefore impossible for them to get out of alignment.

¶ Each cell has but three points of support, so that there is no strain upon steam joints.

¶ One side of the machine is open and entirely free of obstruction, so that the drier is easily threaded.

¶ The rolls are made of seamless drawn brass tubing, and are all in plain sight and easily accessible.

¶ A cloth stretcher or expander may be used if desired in the place of any roll.

¶ The capacity can be readily increased at any time by adding more cells.

¶ A Cell Drier eleven feet long will do the work of a can drier seventy feet long.

¶ The Cell Drier has no buckets, scoops or syphons for removing the water of condensation, but instead has a simple gravity circulation.

¶ It has no vacuum or air valves as used to prevent the collapse of cans, but instead has non-callapsible cells.

¶ It has no cumbersome, noisy gears, but instead has a very efficient chain drive.

¶ It has no stuffing boxes to consume power, require packing, and to leak, but has instead permanent joints, as in a steam radiator.

¶ The Cell Drier is simple, compact and efficient, and therefore saves floor space, steam and power, and requires no repairs.

**CELL DRIER MACHINE COMPANY**

**Taunton, Mass.**

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Experience is the best teacher, but life's too short to learn everything that way. Let the other fellow do part of it and you share the profit. From one (1) to forty-four (44)

**"THE REEVES" VARIABLE SPEED TRANSMISSIONS**

are in use in each of the following textile mills, driving dryers, tentering frames, mercerizing machines, dyeing and bleaching machinery, etc.:—

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Mass. Cotton Mills, "
Merrimack Mfg. Co., "
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Am. Hair Cloth Co., Pawtucket
U. S. Finishing Co., "
Pontiac Bleachery, Pontiac
Providence D. & Bl. Co., Providence
Queen Dyeing Co., Providence
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That's "the other fellow's experience." YOUR PROFIT comes in ADDING YOUR NAME TO THE LIST.

**REEVES PULLEY CO., COLUMBUS, IND., U. S. A.**

# Foster Machine Company

Builders of

## Cone and Tube Winders

Office and Works at

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*The Simplest Humidifier Made.*

EVERY head is a complete unit and requires no air compressors or pressure pumps for operation.

No parts of the Hygrosso are enclosed—hence no opening for cleaning.

Strong and durable construction, economical to operate and highly efficient—an automatic controlling device on every humidifier.

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"BETTER THAN DAYLIGHT"

## COOPER HEWITT LAMP

**Comfortable conditions for work**

mean full efficiency of operatives.

An operative must not only be able to **see** what he is doing, but must see **comfortably** in order to produce the best results. Irritated eyes mean irritated tempers and unsteady nerves,—conditions that are fatal to good work.

It is a proven scientific fact that the **red** rays are the cause of eye irritation; the green rays are restful and soothing, besides rendering fine details, more easily distinguished.

**The Cooper Hewitt Lamp is the only artificial light-source giving no red rays;** its radiant is not a **red-hot** solid, but a softly luminous vapor. Working under the Cooper Hewitt Lamp is like sitting in the moonlight as compared to standing in the blazing sunshine of other light-sources. Keep the eyes cool with the bluish-green light of the Cooper-Hewitt Lamp and there will be no complaints of the heat.

And remember, Light is cheaper than labor.

Send for Catalogue 60

Cooper Hewitt Electric Co.
220 West 29th St., New York

## Walworth Manufacturing Co.,

HIGH PRESSURE

# VALVES AND FITTINGS

"Walmanco" Pipe Flanges

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